Science Library

4/ MAR 10 1939

The OIL AND GAS JOURNAL

MARCH 9 1939

PRICE 0 CENTS

Announcing the NEW HYDRIL Type "R" BLOWOUT PREVENTER

PACKS OFF
ANY DRILL STRING MEMBER OF ANY SHAPE OR SIZE FROM 12½ INCH TO 4½ INCH DIAMETER
Including 4½ in. Square Kelly

•

12½-INCH OPENING
THROUGH BODY & PACKING RUBBER
(No Parts to Remove)

•

6000 POUND
COLD WATER TEST OF COMPLETELY ASSEMBLED BLOW-OUT PREVENTER

•

PATENTED & PATENTS PENDING

HYDRIL COMPANY
714 West Olympic Boulevard, Los Angeles
Location of Factories and Shops Where Hydril Equipment is Manufactured: Torrance, Calif.; Houston, Texas; Odessa, Texas; Rochester, Penna.; Avenal, Calif.; Youngstown, Ohio.

HYDRIL

J & L—partner in progress to American Industry

Deeper into the earth the bits reach for oil with J & L Pipe that is increasingly dependable

America enjoys great resources in oil. Yet deeper and deeper wells will be drilled to assure supplies for the future—to build reserves for emergency. In this progressive work, the petroleum industry looks to the steel makers for equipment that is rugged . . . dependable. Thus many leaders come to J & L for tubular products of sure performance to help their work go on.

Typical of J & L's progressiveness is the Integral-Joint Drill Pipe, designed to reach deeper and deeper for oil and gas with economy and efficiency.

In developing products of stamina for the oil industry, J & L constantly studies this industry's needs of the future with research—conducted in our Pilot Plant Laboratory and directed by the experience of years.

Forty wells drilled—totalling 135,000 feet—is the record to date of this string of 4½" Integral-Joint Drill Pipe used by Campbell Drilling Co. in Kansas. They expect it to make a record for outstanding service and economy.

J & L — PILOTS THE COURSE OF CONTROLLED QUALITY IN STEEL

J&L PIPE

JONES & LAUGHLIN STEEL CORPORATION

AMERICAN IRON AND STEEL WORKS

PITTSBURGH, PENNSYLVANIA

MAKERS OF HIGH QUALITY IRON AND STEEL PRODUCTS SINCE 1850

The Oil and Gas Journal

PUBLISHED WEEKLY BY THE PETROLEUM PUBLISHING COMPANY AT TULSA, OKLAHOMA

P. C. LAUINGER, *President* — *Editor*, C. O. WILLSON

W. T. ANDERSON, *Managing Editor* — JAMES McINTYRE, *Consulting Editor*

W. T. ZIEGENHAIN, *Engineering Editor* — L. G. E. BIGNELL, *Prod. Engineering Editor*

C. K. FRANCIS, Ph.D., *Technical Editor* — W. L. NELSON, *Metallurgical Editor*

Associate Editors

T. F. SMILEY — T. P. SANDERS
DAL DALRYMPLE — PAUL REED
HARRY F. SIMONS

District Editors

Houston, 617 Caroline St.
NEIL WILLIAMS — F. L. SINGLETON

Fort Worth, Petroleum Bldg.
D. H. STORMONT

Shreveport, City Bank Bldg.
GEORGE WEBER

Los Angeles, Union Oil Bldg.
L. P. STOCKMAN

Washington, Natl. Press Bldg.
HENRY D. RALPH

Saginaw, News Bldg.
O. C. PRESSPRICH

Denver, State Office Bldg.
TOLBERT R. INGRAM

New York, 415 Lexington Ave.
H. STANLEY NORMAN

Oil City, Derrick Bldg.
J. P. O'DONNELL

Chatham, Ontario, Box 136
VICTOR LAURISTON

S. H. ROURKE, Business Manager

M. F. BALDWIN, Circulation Manager

Advertising

E. KLAPPENBACH, Vice President

New York, 415 Lexington Ave.
C. L. CAIN

Cleveland, Leader Bldg.
HOWARD MARKT

Chicago, 300 W. Adams St.
C. R. FARMER

Tulsa, 211 S. Cheyenne Ave.
KENNETH J. LANGLEY

Houston, 617 Caroline St.
WAYNE RIVES

Los Angeles, 1406 S. Grand Ave.
J. HOWARD TINKHAM

Cologne, Germany—1 Laudahnstrasse
A. J. CHAMBERS

Table of Contents

Vol. 37, No. 43 — March 9, 1939

News Developments

Summary 21
Smackover Lime Play Is Busy in Southern Arkansas ..... *George Weber* 22
New Arkansas Law Interpreted; State to Join Compact 24
Sparks From the News 26
Kansas Exploration Extends Over State ..... *Dal Dalrymple* 27
Blowout and Fire at Hester Dome Well, Louisiana ..... *Neil Williams* 28
Mene Grande Lets Contract for Eastern Venezuela Line 29
Government Cooperation With Business Nears ..... *Henry D. Ralph* 30
Our Oil and Gas Laws of the Future ..... *Rex Baker* 31
News From State Capitals 32
Editorial: Within the Law 33
Obituaries 34
Revive N.R.A. Plan as Basis for Crude Schedule ..... *C. O. Willson* 35
A.A.P.G. Program for Oklahoma City Meeting 37
International News 39
Natural Gas News and Pipe Line Progress 40
Natural Gasoline News and Refinery Expansion 41
Programs and Meetings 42
Service on New Fields; Slaughter, Hockley County, Texas 70
Spectacular Gain in Alberta Production Despite Proration ..... *J. L. Irwin* 74
Gulf Port Shipments Less; Exports More ..... *Neil Williams* 78

Engineering—Operating

Recycling Aid Recovery in the Kansas Shoe-String Field ..... *Harry F. Simons* 44
Straightrun Gasoline Being Refined for Aviation Purposes ..... *L. J. Coulthurst* 46
Operating Ideas 50
Ethylene Hydrocarbons Subjected to Hydro- and Dehydropolymerization *S. S. Nametkin, L. N. Abakumovskaya, and M. G. Rudenko* 52
Aluminum Chloride Reactions on Unsaturated Hydrocarbons *S. S. Nametkin and M. G. Rudenko* 52
Safety—Bathtub at Refinery to Quench Burning Clothes 57
Engine Water Is Treated in Enclosed Reconditioning System ..... *J. P. O'Donnell* 59
Metals Progress ..... *W. L. Nelson* 62
New Catalytic Polymerization Unit in Johnson Refinery ..... *William J. Leenhouts* 65
Problems From Readers ..... *L. G. E. Bignell* 67
Questions on Technology ..... *C. K. Francis, Ph.D.* 68

Field Operations

Field Operations Summarized 81
Illinois-Kentucky-Ohio 82
North and East Texas ..... *D. H. Stormont* 84
Southwest Texas ..... *F. L. Singleton* 86
California ..... *L. P. Stockman* 88
Rocky Mountain Area ..... *T. R. Ingram* 91
Gulf Coast ..... *Neil Williams* 95
Eastern Fields ..... *Staff Correspondent* 97
Among Drilling Contractors 98
Oklahoma ..... *Dal Dalrymple* 100
Michigan ..... *Otto C. Pressprich* 103
Kansas ..... *Dal Dalrymple* 106
New York-Pennsylvania Gas Fields 107
West and Central Texas and Panhandle ..... *D. H. Stormont* 108
Louisiana and Arkansas ..... *George Weber* 112
Canada ..... *Victor Lauriston* 114
Key to Abbreviations 115
Wildcats 115

Markets and Prices

Crude Oil Prices 122-130
Group 3 Market ..... *T. F. Smiley* 126
A.P.I. Refinery Report 127
New York Market ..... *H. Stanley Norman* 127
Tank-Wagon Market 128
Refinery Prices 129

Additional Features

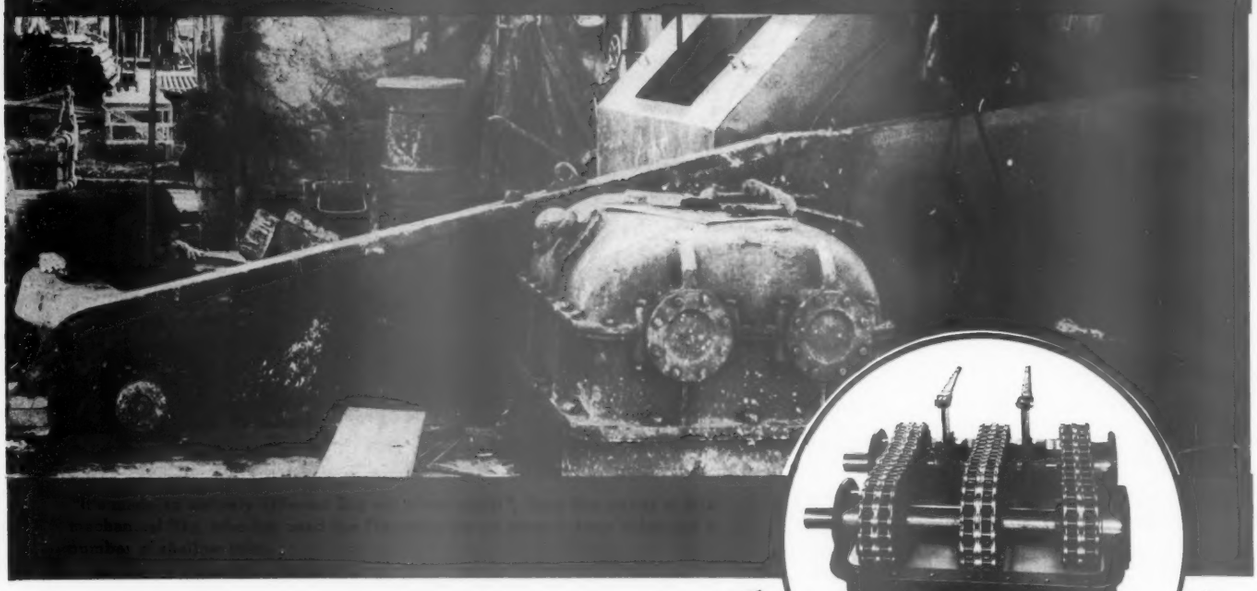
Record of Oil Securities 123
Personal Paragraphs 124
Equipment News 131
Classified Advertising 134
Advertisers' Index 136

SUBSCRIPTIONS: United States, 1 year, $6.00; 6 months, $3.00. Elsewhere, 1 year, $7.00; 6 months, $3.50. SINGLE COPIES: 20 cents each. Back copies, when over a year old, 50 cents. CHANGES OF ADDRESS reaching the Tulsa office of the Journal by Saturday take effect with the following issue.

Copyright, 1939, by The Petroleum Publishing Company

Increased

Reduced



with the GUMBO BUSTER ROTARY DRIVE TRANSMISSION

A conventional type mechanical rig (using any draw works which does not provide multiple speeds to the Rotary) powered with compounded engines, cannot in most formations, utilize the full power of the engines for maximum Slush Pump capacity without rotating the drill pipe too rapidly. As a result Slush Pump power may be sacrificed at one end and Rock Bits at the other.

By adding a Gumbo Buster Transmission, which can be used on any rig without so much as altering a chain guard, all the engine power available (excepting the small amount required to drive the rotary) can be used to obtain the full capacity of the slush pump. The speed of the Rotary, which is controlled entirely by the transmission, can be varied to suit drilling conditions.

Greater Slush Pump capacity adds to the Rig capacity, while controlled Rotary speed lengthens the life of Rock Bits, Chain, Drill Pipe and Tool Joints—increasing profits at both ends.

No shop work is necessary to adapt this Transmission to any Rig. Simply bolt it down to the derrick sills or onto the extended Draw Works skids, add a few links to the drive chain, and it's ready to go.

phone THE NEAREST BRIDGEPORT REPRESENTATIVE FOR ADDITIONAL INFORMATION

Manufactured by THE AMERICAN WELL and PROSPECTING CO., Corsicana, Texas
Distributed by

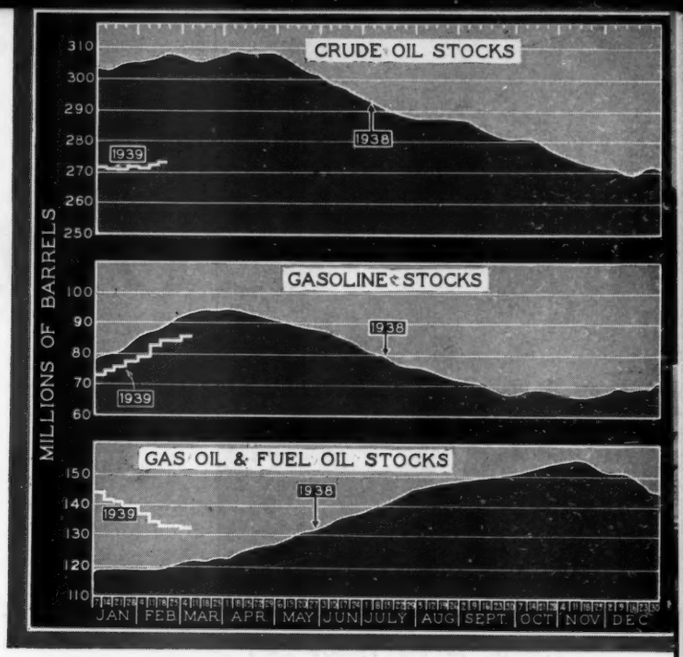
BRIDGEPORT

THE BRIDGEPORT MACHINE COMPANY Factory and General Offices, Wichita, Kansas

HOUSTON • DALLAS • SAN ANTONIO • CORPUS CHRISTI • ODESSA • FORT WORTH • SHREVEPORT • TULSA
OKLAHOMA CITY • BARTLESVILLE • CENTRALIA, ILL. • HOBBS, N. M. • WICHITA • AND BRANCH STORES

Trends

Pennsylvania Grade Producers Are Given Third Crude Advance



THERE were scattered evidences of improvement in the oil situation over the past week although the long-range outlook was still uncertain owing largely to the continued high rate of refinery operations. The most important price development of the week was an increase of 10 to 12 cents per barrel in posted prices for Pennsylvania Grade crude oil, effective in all fields. This was the third increase in these crudes this year, following a 12-month period in 1937 and 1938 during which six reductions became effective. A detailed analysis revealing the improved statistical position of refiners and producers of Pennsylvania Grade crude was published in last week's issue of The Oil and Gas Journal, Page 19.

The new crude schedules were accompanied by higher quotations for Pennsylvania Grade neutral oils and bright stocks, which in 1938 slumped to the lowest levels in several years. There has been a steady increase in demand for these products in recent months.

Away from the Pennsylvania Grade area, slightly stronger gasoline prices were reported in most refining centers. There has been a seasonal increase in gasoline shipments since the first of the month and this has aided materially in stopping the downward price trend. Those in touch with conditions state that it is too early to determine whether this improvement will continue to the point where the refining industry will start regaining the ground lost in prices over a long period starting in 1937. A full recovery will necessitate price increases in gasoline totaling approximately 1½ cents per gallon.

The threatened price reduction applying to approximately 7,000 bbls. daily of stripper production in northern Oklahoma and southern Kansas was averted at least temporarily Tuesday when the National Refining Co., which had announced the reduction effective March 10, agreed to postpone the date until further conferences had been held with producers. The application of the National plan of pricing crude is explained elsewhere in this issue.

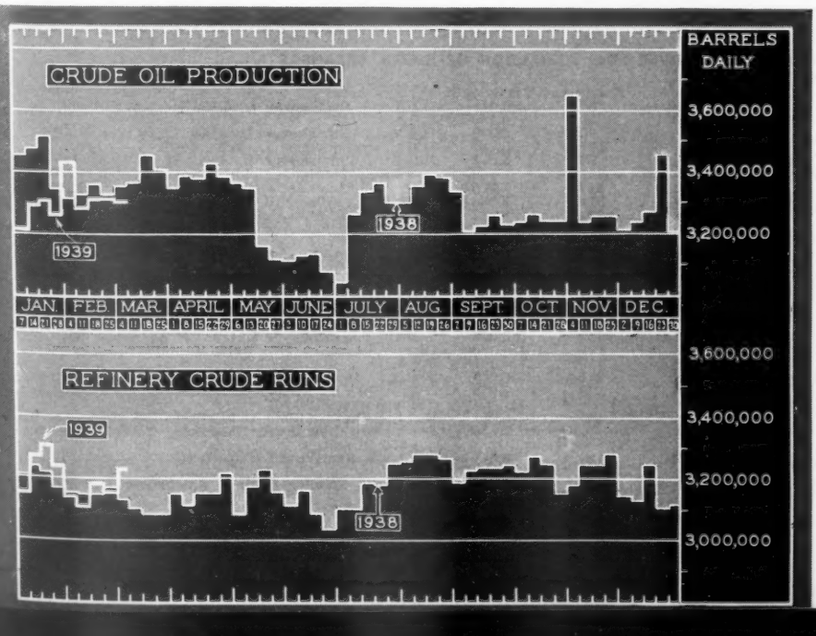
CRUDE PRODUCTION *3,329,437 barrels daily average—down 3,685. One year ago 3,353,127 barrels.*

CRUDE STOCKS *272,052,000 barrels as of February 18—up 499,000. One year ago 305,219,000 barrels.*

GASOLINE STOCKS *85,379,000 barrels as of March 4—up 782,000. One year ago 92,285,000 barrels.*

GAS AND FUEL OIL STOCKS *131,930,000 barrels as of March 4—down 1,741,000. One year ago 121,288,000 barrels.*

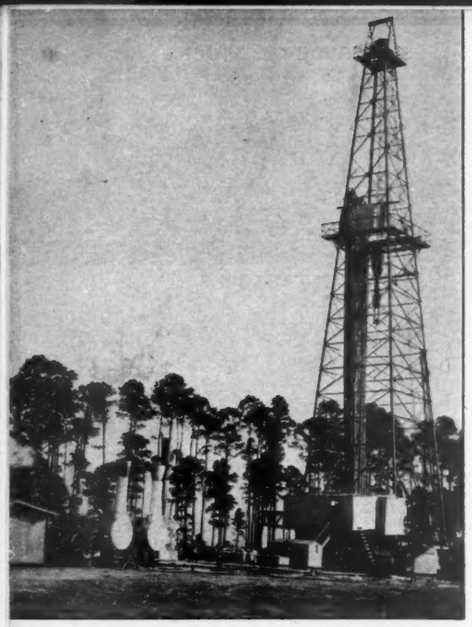
REFINERY RUNS *3,230,000 barrels daily week ending March 4—up 45,000. One year ago 3,093,000 barrels.*



DAILY AVERAGE PRODUCTION FOR WEEK

	Mar. 4, 1939	Bur. Mines Mar. est. of demand	Mar. state allowables	Feb. 25, 1939
Oklahoma City	110,350	.....	.....	114,050
Fitts	30,525	.....	.....	30,575
Remainder of state	300,325	.....	.....	305,200
Total Oklahoma	441,200	473,200	428,000	449,825
East Texas	372,648	.....	.....	372,547
West Texas	208,800	.....	.....	207,748
North Central Texas	111,398	.....	.....	110,248
Texas Panhandle	68,649	.....	.....	64,252
East Central Texas	96,697	.....	.....	94,000
Gulf Coast Texas	356,050	.....	.....	357,098
Southwest Texas	106,797	.....	.....	105,800
Total Texas	1,321,039	1,363,900	1,319,542	1,311,693
North Louisiana	72,115	.....	.....	71,055
Gulf Coast Louisiana	196,740	.....	.....	195,850
Total Louisiana	268,855	259,700	254,220	266,905
California	607,500	588,400	610,000	623,500
Kansas	144,900	150,300	156,850	150,700
Arkansas	52,675	50,000	53,090	53,395
Eastern Fields	96,200	100,300	.....	96,200
Illinois	160,596	125,500	.....	155,408
Michigan	55,992	47,700	.....	54,846
New Mexico	114,540	109,700	109,700	104,370
Rocky Mountain area	65,940	71,300	.....	66,280
Total United States	3,329,437	3,340,000	.....	3,333,122

Total crude oil production last week was practically in line with Bureau of Mines estimates for March, although several states produced in excess of recommendations. California producers reduced their output to 607,500 bbls. daily and efforts will be made to maintain that output over the remainder of the month. Considerable importance attaches to the joint meeting of the Texas Railroad Commission and the Interstate Oil Compact Commission to be held in Austin, Tex., March 15. It is understood that certain producing interests in Texas will insist that one day of the present two-day weekly shutdown in that state be lifted not later than April 1, with other states asked to reduce their output if necessary to provide outlets for that additional crude.



Drilling rig in the Village field of Columbia County. The lime is encountered at depths below 7,000 feet in most of the South Arkansas fields, requiring heavy drilling equipment

Smackover Lime in Southern

By GEORGE WEBER

SHREVEPORT, La., Mar. 6.—Continued development of the Smackover lime trend in South Arkansas promises to add materially to the crude reserves of that area. The revival in oil field activity in the state during the past two years is due primarily to discoveries in the Smackover formation and the base of the Cotton Valley formation immediately overlying it.

Unusual success has resulted from deep wildcat tests drilled on geophysically defined structures in the Smackover lime recently. This relatively high percentage of strikes gives an indication of the crude reserves yet to be discovered in structures which are defined geophysically, but not yet tested with the drilling rig. Over the past two years, 12 wildcat tests were carried to the lime. Of this total, four were new field discoveries, two were recently abandoned after attempting completions in oil shows and a seventh was plugged after showing oil and salt water. The remaining five were abandoned after showing salt water.

Up to the present date, as shown in Table 1, 23 wildcat wells have penetrated the Smackover lime in nine counties of South Arkansas, and the percentage of field discoveries is over 25. The fact that many of the tests were drilled without previous subsurface exploration should be taken into consideration in noting the overall rate of success. Of the five most recently completed wildcats, four were field discoveries.

Table 2 lists the new fields of South Arkansas, together with their producing formations and reserves. It will be noted that the Smackover lime produces in all but one of these fields, the Miller County extension of the Rodessa field. The Schuler field produces from two horizons lying above the Reynolds lime member of the Smackover formation; namely the Morgan sands in the top of the Cotton Valley formation, and the Jones sand in the base of the same formation.

In comparison with the old pools developed during the Smackover period, which have produced in excess of 430,000,000 bbls. of crude and show estimated recoverable reserves of 110,000,000 bbls., the new flush production has accounted for 11,325,000 bbls. of oil, and 107,000,000 bbls. are estimated to be recoverable under approved production methods. In view of the wildcatting to be pursued over the next few years, indications point to a sizeable addition to the latter reserve figures.

New Structures

The accompanying map of South Arkansas shows the extent to which new exploration will be pushed in the southern section of the state. The geophysical prospects which are plotted on the map do not represent all that have been outlined to date. The incomplete map, however, shows a total of 38 prospects in the Smackover lime, two of which were recently tested and shown nonproductive, and a third, Atlanta, which has been proven productive of oil.

These structures extend across eight counties, from Miller County on the west to Ashley County on the east. The information plotted on the map represents the collaborated data of a number of companies which have shot the area by geophysical methods. It is reported there are additional structures which have been located, but whose locations have not been revealed.

The absence of any fossils in the Smackover lime prevents its definite classification as to age, but it is considered to be early Mesozoic. The Gulf Coastal Plain of South Arkansas consists of two principal divisions:* sedimentary deposits of the Eocene and Gulf series, which are generally regular in extent throughout the area; and pre-Gulf formations, consisting of the Comanche series, Cretaceous in age, underlain by post-Pennsylvanian formations of questionable age, with the exception of the Cotton Valley formation, which is Mesozoic.

Formations of the pre-Gulf division dip to the southwest, and the dip of the Cotton Valley, Buckner and Smackover formations is particularly steep. An important feature of these pre-Gulf formations is their extensive truncation to the northeast. Thus the Cotton Valley, Buckner and Smackover lime formations are completely missing in southern Dallas County, and more recent depositions of the pre-Gulf division disappear successively to the southwest. This stratigraphical feature limits the possibilities of new discoveries in those sections now affording flush production to a few counties in the extreme southern section of the state.

The Smackover lime has been encountered in wildcats throughout the area bounded by the Rodessa field on the west, the Schuler field of Union County on the south, western Ashley County on the east, and is known to pinch out in the general vicinity of Township 12s. The thickest section yet to be drilled was 880 feet, but it is estimated to be present in greater thickness in the Schuler field.

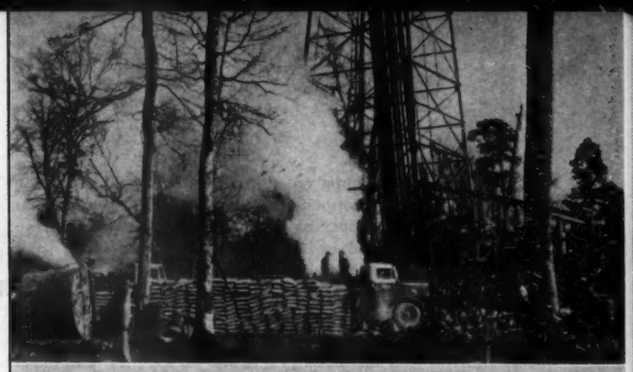
The top section of the Smackover consists of a very porous, oolitic lime of about 100 feet in thickness. This is termed the Reynolds member, named for the discovery well of the Snow Hill field in Ouachita County. The Reynolds member

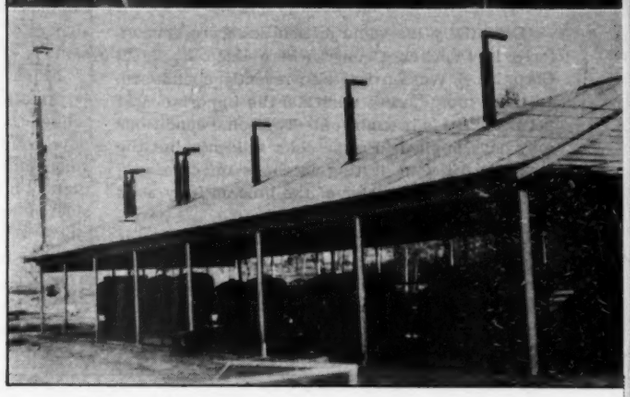
*Warren B. Weeks, South Arkansas Stratigraphy, With Emphasis on the Older Coastal Plain Beds, presented before the A.A.P.G., New Orleans, Mar. 16, 1938.

TABLE 1—WILDCAT WELLS DRILLED INTO THE SMACKOVER LIME FORMATION OF SOUTH ARKANSAS

County—	Owner—	Lease—	Well No.	Location S.-T.-R.	Elevation	Total depth	Remarks:
Ashley	Phillips Petroleum Co.	Godfrey	1	18-17- 9	85	5,611	D.&A.; T. Smackover L. 5,192 ft.; S.W.
Bradley	Phillips Petroleum Co.	Brown Estate	1	28-16-12	90	5,136	D.&A.
Bradley	Phillips Petroleum Co.	C. H. Murphy	1	12-17-11	90	5,630	D.&A.; T. Smackover L. 4,900 ft.; S.W.
Bradley	Phillips Petroleum Co.	Marsden	1	9-16-11	137	5,140	D.&A.; cored dense L., salty taste.
Calhoun	B. G. Barnett	Freeman Lumber Co.	1	36-15-14	89	5,518	D.&A.; T. Smackover L. 4,885 ft.; S.W.
Columbia	Kerr-Lynn Oil Co.	Barnett	1	14-17-20	321	7,740	Disc. well, Magnolia field; T. Smackover L. 7,604 ft.
Columbia	Standard Oil Co. of Louisiana	McKean	1	8-16-22	257	7,306	Disc. well, Buckner field; T. Smackover L. 7,195 ft.
Columbia	Standard Oil Co. of Louisiana	Phillips	1	15-17-19	311	7,603	Disc. well, Village field; T. Smackover L. 7,365 ft.
Columbia	Tide Water Associated Oil Co.	Beene	1	15-18-19	232	8,332	Disc. well, Atlanta field, T. por. Smkvr. L. 8,201 ft.
Lafayette	Erwin & Leach	Bodcaw Lumber Co.	3	20-16-23	250	7,707	D.&A.; T. Smackover L. 7,650 ft.; S.W.
Lafayette	Shell Petroleum Corp. and Ohio Oil Co.	Warren	1	13-16-24	252	7,420	D.&A.: T. Smkvr. L. 7,171 ft.; por. and oil sat.; low perm.
Miller	E. H. Moore, Inc.	Dale	1	24-15-26	255	7,316	D.&A.
Nevada	Benedum & Trees	Block	1	9-14-20	287	5,394	D.&A.; S.W.
Nevada	Benedum & Trees	Groves	1	10-14-20	354	6,143	T. Smackover L. 5,141 ft.; S.W.; T. salt 5,394 ft.; P.B. 2,186 ft.; oiler.
Ouachita	Deep Rock Oil Corp.	Wesson	1	23-15-19	249	6,053	D.&A.: T. Smackover L. 5,923 ft.; dry; low perm.
Ouachita	Phillips Petroleum Co.	Reynolds	1	27-15-15	178	4,926	Disc. well, Snow Hill field; T. Smkvr. L. 4,908 ft.
Ouachita	Tide Water Associated Oil Co.	Graves	1	33-13-18	189	4,501	D.&A.
Union	Fohs Oil Co.	Craig	1	5-18-14	251	6,905	Abd.; T. Smackover L. 6,849 ft.; tstd. oil and S.W.
Union	Gulf Refining Co.	Werner	49	5-16-16	129	7,973	D.&A.; 700 ft. L.; 900 ft. salt; loc. Louann dome, Smackover field.
Union	H. L. Hunt	Gregory	15	10-17-14	180	6,911	D.&A.; Champagnolle field; drld. 100 ft. into salt.
Union	Lion Oil Refining Co.	Hayes "A"	9	4-16-15	96	7,255	D.&A.; Norphlet dome, Smackover field; 700 ft. L.; 1,300 ft. salt.
Union	Joe Modisett	Union Sawmill	2	8-18-12	184	6,511	D.&A.; T. Smackover L. 6,059 ft.
Union	Lion Oil Refining Co. and Phillips Petroleum Co.	Morgan "A"	1	18-18-17	229	7,684	Disc. well, Schuler field; T. Smackover L. 7,606 ft.

Play Is Busy Arkansas





(Top) *Cementing an oil string in the Magnolia field of Columbia County. This field, although only in its initial development, is already the most important Smackover lime pool to date in the state.*—(Lower) *This pump station in the Schuler field moves crude from the largest of the recent flush fields into El Dorado, where most of the field's crude is refined*

is the producing formation in all of the Smackover lime fields discovered to date in South Arkansas. Below the oolitic section is about 400 to 500 feet of relatively soft limestone, and below that is dark, dense cryptocrystalline limestone.

The Reynolds lime section is characterized in all current producing structures by a very active water drive. Water has encroached in the Snow Hill field, on the northern flank of Smackover, until production has declined to a negligible figure. Water is also showing to a considerable extent in the Reynolds lime wells of Schuler.

The porosity of the Reynolds limestone is generally consistent in the tests which have encountered it to date. In the sections where structures occur, good oil saturation is encountered in most cases. A variable characteristic, however, and one which may be a governing factor in future successes in the formation, is the permeability of the oolitic section.

The best example of this condition is shown in the current wildcat testing the Stamps structure in Lafayette County. Good porosity and saturation were shown on analysis of the cores, but the very low permeability has prevented completion of the well as a field discovery, despite acidizing.

Generally, it may be said that the lime shows low permeability in the north and west sections of the area through which it is found in South Arkansas. The Buckner field of Lafayette and Columbia counties shows permeabilities comparable to the Stamps and Stephens tests, and the Snow Hill wells show the same general characteristics.

In view of this fairly well-established trend, it may be expected that the geophysical structures which lie in the central south and east sections of the South Arkansas trend will show better permeability than those along the north and west edges of the area. Any possible trend in porosity will be determined by tests in the south and east, although no such variation has been indicated to date.

The first wildcat in South Arkansas to encounter the Smackover lime was Lion Oil Refining Co. No. 9-A Hayes, in the Norphlet dome area of the Smackover field of Union County. The test, drilled in 1934 to a total depth of 7,255 feet, encountered about 700 feet of limestone and 1,300 feet of salt. The next deep test to drill the formation was H. L. Hunt No. 15 Gregory, in the Champagnolle or Rainbow field of Union County. This well, carried to 6,911 feet, also ran into salt, and considerable information was derived by coring the limestone section above the salt.

A third test drilled into the formation, on the Louann dome of the Smackover field, was carried through 700 feet of lime, 900 feet of salt and was abandoned in 350 feet of igneous rock. This test, drilled by Gulf Refining Co., encountered a show of oil in the lime, and created interest in further exploration of the formation.

The next wildcat to be carried to the formation was successful in discovering the Snow Hill field, first Smackover lime production in the area. The discovery well, Phillips Petroleum Co. No. 1 Reynolds, on the north edge of Smackover, found production in the upper, oolitic section of the lime, which derives its name from the well.

The discovery of Schuler followed, although development took place primarily in the Morgan and Jones sands of the Cotton Valley formation. Then followed in regular succession, Buckner, Magnolia, Village, and Atlanta, representing the only four wildcats drilled to the lime in Columbia County to date, and giving that section a 100 per cent rating of success in finding Smackover production.

Little is known of the Smackover from tests drilled in the early period, but advanced core analysis and coring methods are adding considerable to the information on the section.

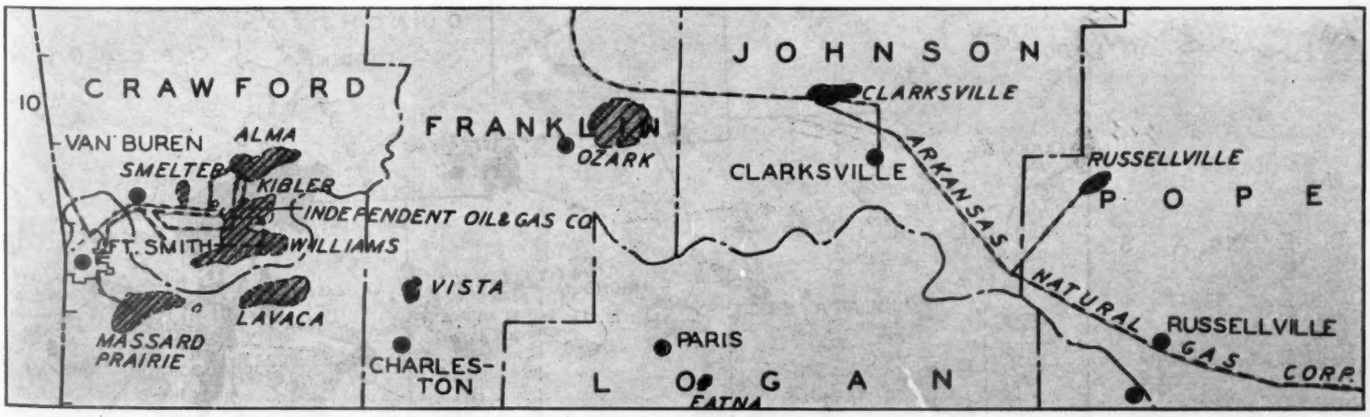
Current Tests

The two highs most recently drilled in South Arkansas are the Stamps structure, near Lewisville in Lafayette County, and the Stephens prospect, near the shallow Stephens field of southwest Ouachita County. These two tests have added much to the information on the Smackover lime.

In the Stamps area, Shell Petroleum Corp. and Ohio Oil Co. No. 1 Warren encountered the

ARKANSAS GAS FIELDS

Gas fields—	County	Township	Range
Alma	Crawford	9	30
Clarkesville	Johnson	10	24
Fatna	Logan	8	27
Kibler-Williams	Crawford	8, 9	30, 31
Lavaca	Sebastian	8	30
Mansfield	Sebastian, Scott	7, 8	31
Mazzard-Prairie	Sebastian	7, 8	31, 32
Ozark	Franklin	10	29
Russellville	Pope	9	21
Smelter	Crawford	9	31
Vista	Franklin	8	29



Shaded areas are gas fields in southern Arkansas. Lines made up of short dashes are gas pipe lines. Map taken from data compiled by C. H. Thigpen and A. M. Crowell

Smackover near the apparent top of the structure at 7,165 feet, and topped the Reynolds oolitic member of the Smackover at 7,179 feet. The water contact was found at 7,186 feet. Although the porous lime section showed sufficient porosity and saturation to make a well, the permeability is so low that tests, even after acidizing, have failed to show sufficient oil for a commercial producer, and the well has been plugged.

Essentially the same difficulties were encountered in Ouachita County where Deep Rock Oil Corp. No. 1 Wesson was also recently abandoned. In these more recent wildcats, the importance of permeability is brought out. The same conditions may have applied in some older wildcats, but the lack of sufficient testing methods on cores did not reveal the character of the lime as fully as is possible at the present time.

An important wildcat to be drilled in the near future is to be located in the vicinity of Junction City, on the southernmost edge of Union County. The location of this test with respect to the others will give an important basis for anticipating trends in the porosity permeability and other characteristics of the Smackover lime. A second important wildcat is under way between Magnolia and Buckner in Columbia County.

New Control Law Discussed

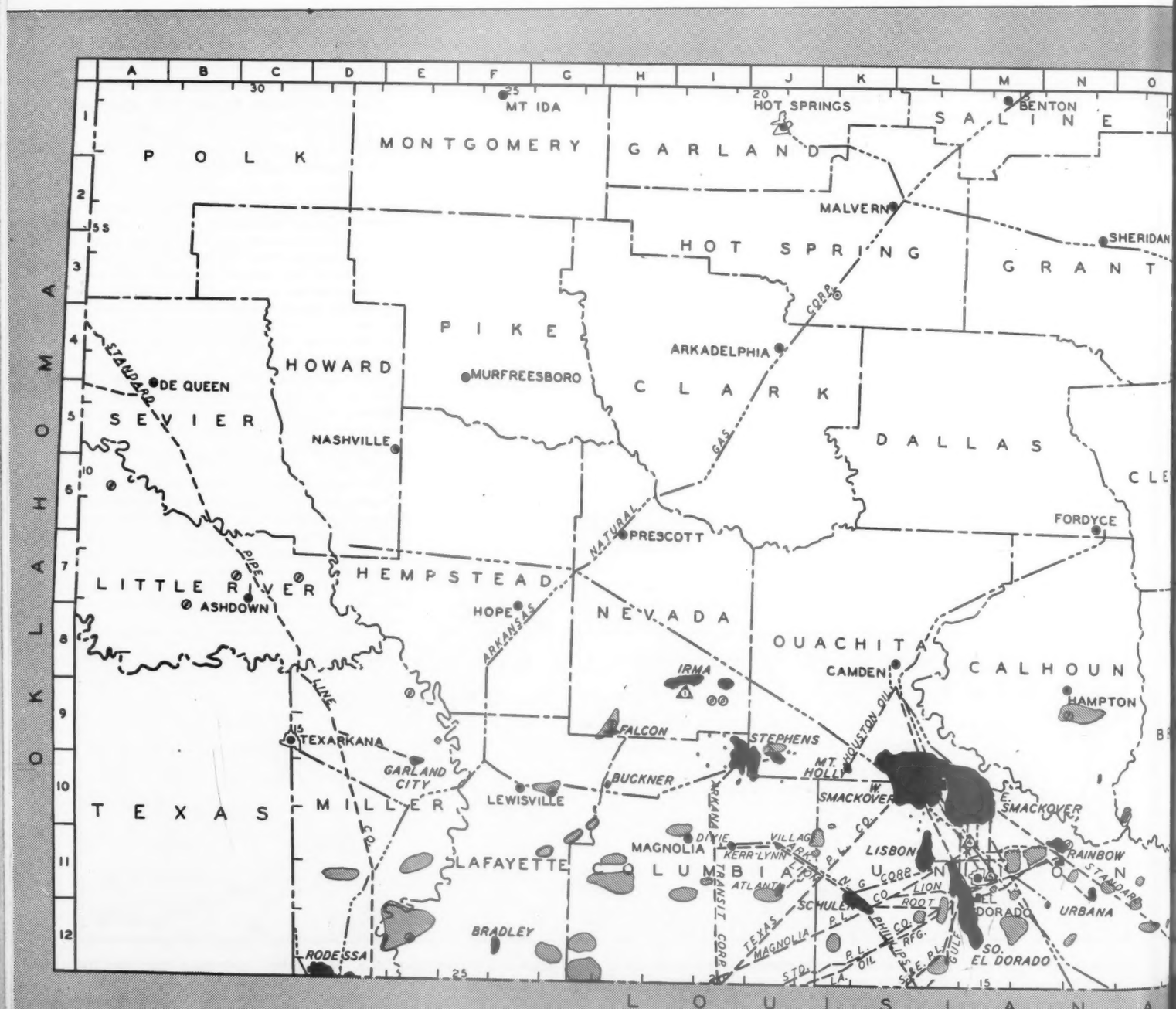
A discussion of the new oil and gas control statute signed by Gov. Carl E. Bailey, February 21, 1938, based on opinions set forth by commissioners of the newly formed Oil and Gas Commission, is of particular interest at this time.

Experience elsewhere has taught that an interpretation of this nature does not necessarily follow that of the administrative agency, attorneys, the courts, economists, and others. Only the rules and regulations promulgated by the regulatory body, after public hearing, should be considered as indicative of the true interpretation, since it is the composite opinion based upon findings of fact.

The measure, however, is designed primarily to prevent waste. To accomplish this purpose, the utilization of sound engineering knowledge and practice is contemplated, and therefore, the provisions of the act are such as to make practical engineering fact applicable. That a close approach to the successful realization of true conservation and equity can be obtained in this manner has become increasingly obvious.

The caption of the law is expressive: "An act to prevent waste, foster, encourage and provide conservation of crude oil and natural gas, and products thereof, and protect the vested, coequal or correlative rights of owners of crude oil or natural gas, as defined in this act and in furtherance thereof, creating an oil and gas commission; authorizing it to prescribe rules, regulations and orders; authorizing it to provide for the spacing of wells and to designate drilling units; providing penalties for the violation of the provisions of this act, and of the rules, regulations and orders of the commission; and repealing all acts and laws in conflict herewith."

Much has been said and more has been written during the evolution of production control by state regulation. There is no need to repeat here



any argument for production control. All are fairly well agreed that if the purpose of and the result of are (1) the greater ultimate recovery of oil and gas, and (2) the protection of the public and private interests, there should be no argument.

The statutory construction of a measure designed to take into consideration all things necessary, when applied, has been difficult. One basic fact has developed—any deviation too far afield from the principles involved in the prevention of waste has inevitably led to confusion, and some think, actually to the fostering of waste.

The so-called "new conception of oil production" which has come into being during the last 12 years has been brought about by rapidly advancing technology tempered with practical production experience. The average "switcher" on leases producing from deep, high-pressure reservoirs today is conversant with terms that a few years ago, if in existence, were relegated to the mystic halls of science.

Arkansas Will Join Interstate Compact

LITTLE ROCK, Ark., Mar. 6.—The Arkansas Oil and Gas Commission meeting with Governor Carl E. Bailey today, unanimously voted to endorse Arkansas' joining the Interstate Compact.

"The next move," Governor Bailey said, "would be to have the legislature adopt a resolution authorizing the state to join the compact. I will prepare one and have it introduced this afternoon. Since we have encouraged the conservation plan it is all the more reason for us to join the compact so that other states will understand we are not trying to stand alone.

"We want to encourage them. We want to dispel any suspicion that we want to get other states to conserve these resources and then go out on our own to produce. The pact will prevent that."

The statute definitely defines waste, prohibits it, and in ensuing provisions states that the administrative agency shall do certain things:

" 'Waste' in addition to its ordinary meaning, shall mean 'physical waste' as that term is generally understood in the oil and gas industry."

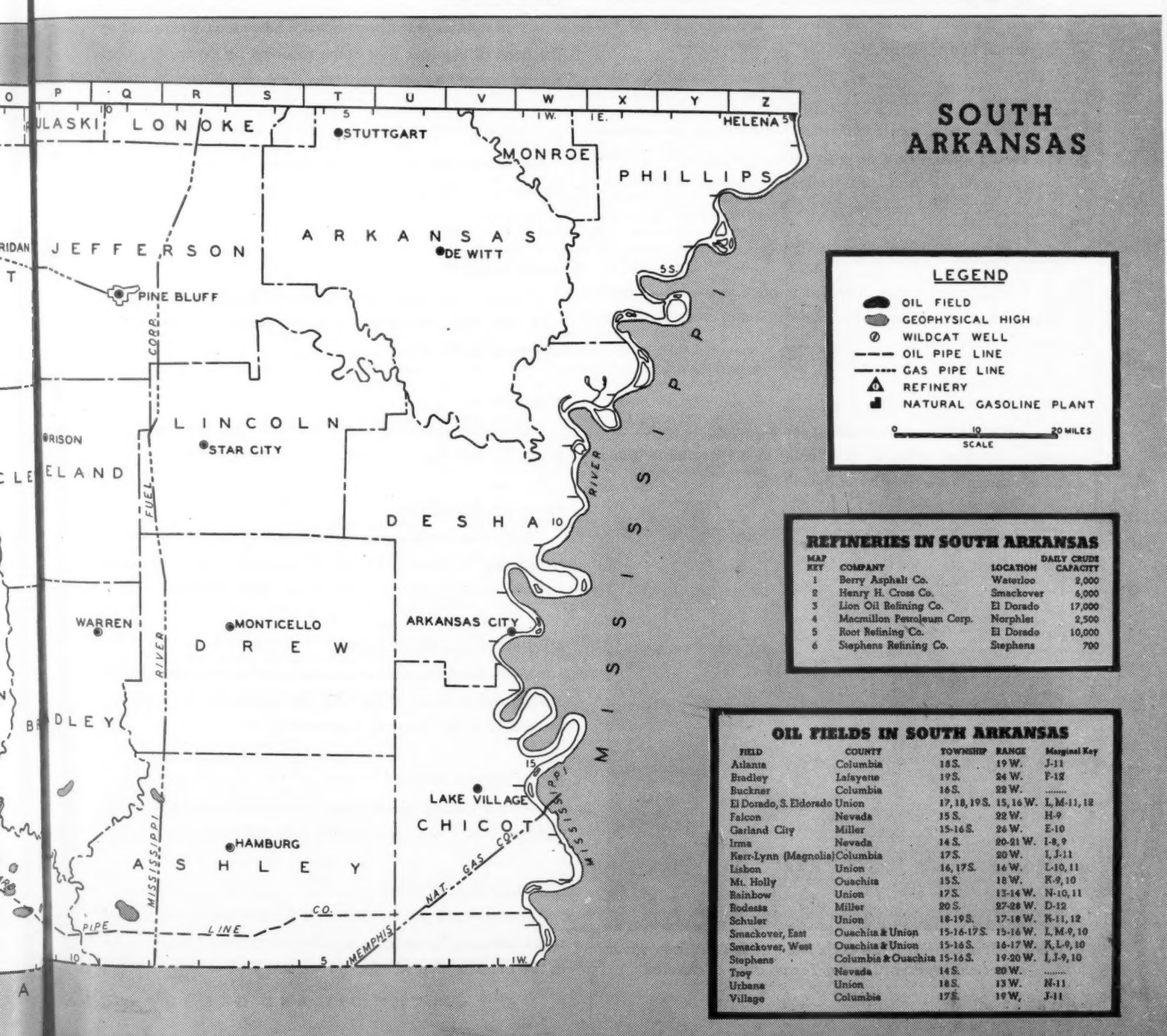
From many orders written by the various regulatory bodies, in the fact-finding portions, energy and its importance in the production of oil is set out. I have heard no disagreement among engineers.

Then, if the inefficient, excessive or improper use or dissipation of reservoir energy is prevented, as provided that it must be, Items 3, 4 and 5 above are taken care of in the summary of the importance of reservoir energy.

Oil movement through a sand is caused by a pressure differential existing between the well bore and intercommunicating parts of the pay formation in the reservoir. This pressure differential between the various parts of the reservoir and the well bore may result from one of the following three sources or from all of them:

(*a*) Gravitation Force—or that force which

(Continued on Page 38)



REFINERIES IN SOUTH ARKANSAS

MAP KEY	COMPANY	LOCATION	DAILY CRUDE CAPACITY
1	Berry Asphalt Co.	Waterloo	2,000
2	Henry H. Cross Co.	Smackover	6,000
3	Lion Oil Refining Co.	El Dorado	17,000
4	Macmillon Petroleum Corp.	Norphlet	2,500
5	Root Refining Co.	El Dorado	10,000
6	Stephens Refining Co.	Stephens	700

OIL FIELDS IN SOUTH ARKANSAS

FIELD	COUNTY	TOWNSHIP	RANGE	Marginal Key
Atlanta	Columbia	18 S.	19 W.	J-11
Bradley	Lafayette	19 S.	24 W.	F-12
Buckner	Columbia	16 S.	22 W.	.....
El Dorado, S. Eldorado	Union	17, 18, 19 S.	15, 16 W.	L, M-11, 12
Falcon	Nevada	15 S.	22 W.	H-9
Garland City	Miller	15-16 S.	26 W.	E-10
Irma	Nevada	14 S.	20-21 W.	I-8, 9
Kerr-Lynn (Magnolia)	Columbia	17 S.	20 W.	I, J-11
Lisbon	Union	16, 17 S.	16 W.	L-10, 11
Mt. Holly	Ouachita	15 S.	18 W.	K-9, 10
Rainbow	Union	17 S.	13-14 W.	N-10, 11
Rodessa	Miller	20 S.	27-28 W.	D-12
Schuler	Union	18-19 S.	17-18 W.	K-11, 12
Smackover, East	Ouachita & Union	15-16-17 S.	15-16 W.	I, M-9, 10
Smackover, West	Ouachita & Union	15-16 S.	16-17 W.	K, L-9, 10
Stephens	Columbia & Ouachita	15-16 S.	19-20 W.	I, J-9, 10
Troy	Nevada	14 S.	20 W.	.....
Urbana	Union	18 S.	13 W.	N-11
Village	Columbia	17 S.	19 W.	J-11

SPARKS FROM THE NEWS

100 PER CENT

Arkansas lines up 100 per cent by announcing its intention to join the Interstate Oil Compact Commission, backed by a strong conservation act.

THAT HELPS

In the Mid-Continent, where heating oil stocks have become a problem, the lighter gravities are being bought for conversion into tractor fuel.

STIFFNESS

Western lubricant manufacturers are casting an envious eye on the East, where neutrals have taken a jump. It has been more than a year since their own prices have done any jumping. (Except downward.)

N.R.A. GHOST

The outlawed N.R.A. now comes back to the oil industry suggesting a change in method of determining crude oil schedules.

NEW SUPPLY

Contracts have been let for a 16-inch pipe line which will add a minimum of 50,000 bbls. daily to the available crude oil in eastern Venezuela by early fall.

What's left of Seaboard Oil Corp. No. 1 Ellen C. Wilson, Riverside field, Nueces County, Texas, after it cratered

MAY REPLACE FURNITURE

Grand Rapids is making a bid for honors as an oil metropolis. It has a new oil field 5 miles west of it and two of the most important fields in Michigan south of it in Allegan and Van Buren counties.

OPEN-MINDED

That refiners are always open to new ideas is revealed by the flood of inquiries now being received by processing companies regarding developments in catalytic refining.

NO FLARES

Developments in recycling indicate that the time is not far distant when gas flares in the oil country will be a thing of the past.

FIFTH PLACE

Illinois, with a daily production of 160,596 bbls., last week took fifth place among the oil states, passing Kansas with a margin of 16,000 bbls.

STILL AT IT

California operators never give up, and last week they brought production down within the current demand.

JUDICIAL HODGEPODGE

Judicial interpretations of conservation acts, which always have been a mystery to lay oil operators, are now being termed a hodgepodge by some of the legal fraternity.

MICHIGAN DEVELOPMENTS

While not receiving the national attention accorded Illinois developments, some of the new discoveries in Michigan unquestionably are of major importance.

MORE NORTH TEXAS

Archer County, North Texas, continues to increase in importance with a new pool, 3 miles from the closest production.

OLD RECORD BROKEN

A statistician points out that for the first time in the history of the industry, Texas has taken first place from Pennsylvania in the number of producing oil wells.

Kansas Exploration Extends Over State

By DAL DALRYMPLE

The search for new oil and gas pools in Kansas will continue unabated during 1939, with wildcat exploration extending into several northeastern counties that heretofore have received little attention from oil operators. However, the curtailment of drilling in proven fields that began in 1938 will continue and the total number of wells drilled during the year may be considerably under the total for the preceding 12 months. Such a forecast is based on opinions of observers familiar with the Kansas scene and cognizant of activity elsewhere that affects the industry in the Sunflower state. Unforeseen developments may change the picture, but the outlook now is for a minimum of field operations and a continuation of wildcatting along a farflung front.

Already, the 1939 wildcat exploration campaign has spread over much of the state. Tests have been started in Leavenworth County, near the Missouri line in the northeastern part of the state; far to the west in Smith and Phillips counties, near the Nebraska line; farther west, in Graham County; down south in Barber County, a few miles from the Oklahoma boundary; in some of the southeastern counties in the old stripper fields, and in several of the more centrally located counties. Only the far western counties have been neglected by the wildcatters thus far in the 1939 program of exploration, and it is thought some of them may be punctured by the drill later in the year. In addition to the new tests announced in January and February, several older wildcats started in 1938 still are active and will be carried to decisions this year.

The Big Question

The Forest City basin currently provides the big question mark in Kansas, as it does in Missouri, Iowa and Nebraska. A considerable portion of that basin includes several northeastern Kansas counties, as well as adjacent sectors of the three neighboring states. The Forest City basin lease play has been one of the phenomena of petroleum history. Starting last summer in northern Missouri, the leasing activity soon spread to include practically all of the basin in the four states and still is going strong, with both major companies and independent operators taking acreage. Millions of acres have been leased, numerous big blocks have been assembled and geological and geophysical crews have been active throughout the basin—all in an area far removed from any proven oil pool of importance.

The Kansas sector of the basin has been popular with many operators, some of whom have confined their Forest City activity to that area. Kansas counties in the basin and sharing in this activity include Atchison, Brown, Doniphan, Douglas, Jackson, Jefferson, Johnson, Leavenworth, Nemaha, Shawnee, Wabaunsee and Wyandotte. Two wildcats already have been started in the Kansas area and, it is thought certain, several others will be started as soon as lease blocks can be completed, titles cleared and weather favorable to drilling operations prevails.

Many geologists, including some of the more reputable, widely known in the Mid-Continent fields, have studied the basin and declared it has good possibilities for oil and gas production. They agree that most of the formations that produce oil and gas elsewhere in Kansas are present in the basin, as well as other strata that are paying off in Illinois. They cannot say, of course, whether oil has been trapped in those formations in the basin—that being left for the drill to determine. Several tests have been drilled in the Kansas sector in previous years, most of them without benefit of geology and with inadequate equipment to test the sands thoroughly. In several instances, however, showings of oil and gas were reported. Some shallow pools have been producing for several years in Douglas, Johnson and Wyandotte counties, but they have been of minor importance. Wildcats to be drilled as a result of the current lease play will be based on geological information and will utilize modern equipment.

Basin Tests Started

Several wildcats undoubtedly will be drilled in the basin this year, observers insist. If one of them, either in Kansas or any of the other states, finds oil in commercial quantities, a drilling boom similar to that in Illinois may be expected.

The two tests that have been started in northeastern Kansas are W. M. McKnab No. 1 Fritz, SW SE NW Section 4-12-14, near Topeka in Shawnee County, and John Hardaway and others No. 1 Scheller, SW SE SW Section 30-10-22, some 12 miles southwest of Leavenworth in the county of that name.

Although several tests may be drilled in the Forest City basin area this year, the bulk of the wildcat exploration in the state probably will be confined to the counties on or along the flanks of the Central Kansas uplift, where such major pools as Silica, Trapp, Bemis and others have been developed.

Stafford County with 31, Barton County with 26 and Russell County with 23 led the state in wildcat operations in 1938. Expectations are they will continue to pace the state this year, with Rice, Ellis, Cowley and possibly Reno counties also rating among the leaders.

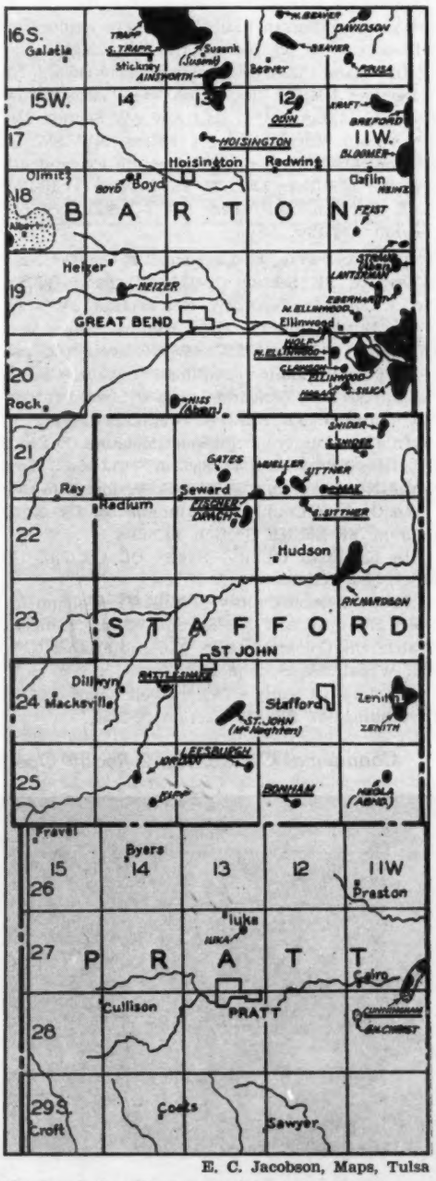
If a trend that became pronounced about four years ago should continue this year, Pratt and Barber counties also will share largely in the 1939 exploration campaign. This trend, following a previous trend of lease activity, began in Ellis and Russell counties when expiration dates of 10-year leases approached.

The intensive wildcat play extended into Barton County in 1937, many tests being drilled to protect leases due to expire that year; thence into Stafford County in 1938, much of that development being forced by lease conditions. A large number of the wildcats drilled in those two counties opened producing areas, as had been the case in Ellis and Russell counties, encouraging further exploration.

In Pratt and Barber

Many leases in Pratt County, south of Stafford, and in Barber County, south of Pratt, will expire this year. Ordinarily, the intensive wildcat drilling campaign that had swept south from Russell through Barton and Stafford counties would extend into Pratt and Barber counties this year, many tests being drilled to protect leases. However, with Illinois still going strong and Kansas market demands such as they are, it is not thought likely the two southern counties will experience the widespread activity they would have enjoyed if conditions had been more favorable. Many leases probably will be permitted to expire and others will be renewed for long periods. Even so, it appears likely several wildcats will be drilled in both Pratt and Barber counties this year.

Other central counties in which more or less wildcat activity in 1939 is indicated include McPherson, Harvey, Sedgwick and Sumner. Along the Granite ridge, one of the pronounced struc-



E. C. Jacobson, Maps, Tulsa

Much of the Kansas wildcat exploration in 1939 expected to center in these west central counties

tural features of Kansas, an exploration campaign extending from Cowley County on the south into Butler and Marion counties, and possibly farther northward, may result in the drilling of several tests. In southeastern Kansas it is probable Greenwood, Elk, Woodson and Wilson counties will continue to attract wildcat operators looking for shoestring trends and shallow sands that have been missed through years of previous exploration. Some Arbuckle lime tests also may be drilled in the southeast.

Scattered wildcatting is indicated elsewhere in the state, with Ellsworth, Rooks, Graham, Trego, Ness and Rush counties among those more likely to be explored. There is little indication of much drilling activity, if any, in the far western counties this year. Their lack of market outlets and great depths at which production would be expected will delay general exploration in that sector until further developments justify such work. However, several outposts may be drilled in southwestern counties in an effort to enlarge the Hugoton gas area.

Start Many New Tests

Wildcats started in Kansas since the first of the year, giving an indication where exploration will be carried on, include the following:

In Barton County—Sinclair Prairie Oil Co. No. 1 Pichner, NE SE SE Section 10-16-11w; Gulf Oil Corp. No. 1 Louis, C N half NW SW Section 2-20-12w; Paul Martin No. 1-A Feltes, NW SW SE Section 8-16-12w; Central Petroleum Co. and others No. 1 Miller, SE SW SE Section 17-16-13w. L. E. Gardner and others No. 1 Drake, NE cor. Section 4-17-13w.

In Barber County—Barber Oil & Gas Co. No. 1 Wilson, C SE Section 17-33-13w; Olson Oil Co. No. 1 Coffman, NW NW NE Section 25-31-12w.

In Butler County—Hay, Hall & Table Mesa Oil Co. No. 1 Ferrell, SW NW NE Section 28-28-8.

In Cowley County—Phillips Petroleum Co. No. 1 Esch, SE SE NE Section 19-33-6; Mead Brothers No. 1 Julian, NE SE NW Section 16-33-3e.

In Ellis County—Bridgeport Machine Co. No. 1 Froelich, SW NW SW Section 34-12-16w; Fred Smith No. 1 Werth, SW SW SE Section 33-15-18w.

In Graham County—Continental Oil Co. No. 1 Drumm, SE SE NE Section 16-9-21w.

In Kingman County—Skelly Oil Co. No. 1-D Miles, CSL NE Section 19-27-10w.

In McPherson County—Phillips Petroleum Co. No. 1 Esau, SE NW NE Section 7-21-4w; Sinclair Prairie Oil Co. and others No. 1 Martens, C W half W half SW Section 20-21-3w.

In Marion County—Vickers Petroleum Co. No. 1 Sutphin, SW SE SW Section 30-22-4e.

In Phillips County—Blue Stem Oil Co. No. 1 Donaldson, SE NE Section 25-5-18w.

In Reno County—Barnsdall Oil Co. No. 1 Krehbiel, NE NE NE Section 18-25-5w.

In Rice County—Schneider, Pulse & Gerbrand No. 1 Williams, CSL SE SW Section 27-21-9w.

In Russell County—Century Petroleum Corp. No. 1 Karst, SW NE SW Section 21-15-13w; Skelly Oil Co. No. 1 Carter, C S half SW NE Section 33-14-13w.

In Sedgwick County—Century Petroleum Corp. No. 1 Wilke, SW SE SW Section 1-29-2e.

In Smith County—Crabtree & Myers No. 1 Stolting, C NE NE Section 7-1s-15w.

In Woodson County—Roby and others No. 1 Meairs, SW SW NW Section 21-25-14.

Other counties in which wildcats are at various stages of drilling include Dickinson, Greenwood, Mead, Osage, Ottawa, Pratt, Rice, Rooks, Saline, Stafford and Elk.

Discoveries of this year to date include opening of the North Fairfield pool in Russell County; extension of the Campbell pool in Rice County; extension of the Coralena pool in Russell County; opening of the Proffitt pool in Rice County; extension of the Silica pool in Barton County; opening of Topeka lime production in the Ainsworth pool, Barton County; opening of the Peavey pool in Ellis County; opening of the Kruckenberg pool in Barton County; completion of the Boyd pool opener in Barton County; and extensions of Buhler pool in Reno, Morel pool in Graham, Prusa pool in Barton, South Sittner pool in Stafford, Trapp field in Russell, Cairo gas pool in Pratt, Walters pool in Ellis, Kramer pool in Butler, Schneider pool in Russell and Hittle pool in Cowley.

Fire After Blowout at Hester Dome Wreaks Destruction

By NEIL WILLIAMS

HOUSTON, Tex., Mar. 6.—Pressure in Continental Oil Co. No. 2 Realty Operators, Hester dome, near Vacherie, St. James Parish, coastal Louisiana, which blew out catching fire and destroying the derrick and rig, are estimated to have run from 6,100 to 6,200 pounds at the surface.

The blowout and fire at the Continental well was so rapid there was not time to close completely the blowout preventers with which the well was adequately supplied. The blowout occurred at 12:50 p.m., Friday, February 24. It came without warning in just one sudden heave. Just 14 minutes later the well ignited. Within 10 minutes the derrick collapsed, and with the rig, was a mass of tangled wreckage. Had there been a little more time between the blowout and the fire it is believed the well could have been brought under control with the equipment on the job. The crew had just finished picking up the kelly and making connection on the drill pipe in the hole, preparatory to resuming circulation, after having come out of the hole with the wire-line core barrel. The pumps, however, had not been started, and without warning of the blowout, there was not time to do so.

Fortunately, there was a string of 9⅝-inch protection casing cemented in the hole below 7,200 feet. Had it not been for this pipe, the well might have cratered quickly around the surface pipe (13⅜-inch at 1,492 feet). Although the blowout and fire lasted only until 12:45 a.m., Saturday, or slightly less than 12 hours, a crater might have meant complete loss of the well. As it is, with the clearing away of the wreckage, a new rig will be moved on and the well reclaimed.

The well killed itself, probably due to bridging of the hole, which is believed to have taken place near the bottom. A full string of 4½-inch drill pipe is in the hole, and with the hole bridged, a cutting and fishing job may be necessary. With 9⅝-inch casing cemented below 7,000 feet, there is only about 1,000 feet of open hole to bottom.

Calculations as to pressure have been based on the fact that the well had been drilling with 14.4-pound mud, which in a column the depth of the Continental well would weigh more than 6,200 pounds. The pressure was sufficient to lift the entire column of mud in one sudden heave. Viscosity of the mud had been running 37 to 39 seconds (500 CC).

Hardly before the ground had cooled, work of clearing away the debris was under way. The wreckage was such a tangle, and so badly fused it was necessary to use cutting torches and tractors. The engine and pumps, although damaged, are expected to be salvaged.

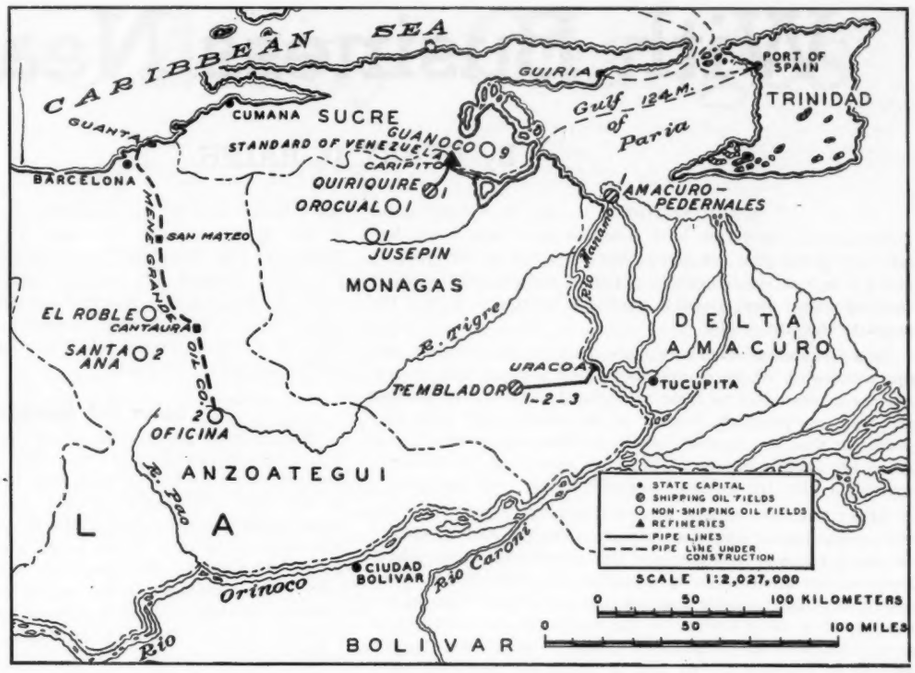
Bottom of the well is about 1,875 feet below the producing depth of the company's No. 1 Realty Operators, discovery well, and so far only producer.

Continental Oil Co. No. 2 Realty Operators, Hester Dome, Louisiana, during fire

To Lift Saturday Shutdowns And Space Wells Wider

AUSTIN, Tex., Mar. 7.—Lon A. Smith, chairman of the Texas Railroad Commission, announced today that Saturday shutdowns of Texas oil fields probably will be lifted April 1. He said also the commission was considering substituting a rule of one well to 10 acres for the present rule of one well to 2.06 acres.

Gulf Lets Contract for Line in Eastern Venezuela



Location of Mene Grande Oil Co. pipe line, oil fields, refineries and other principal points in eastern Venezuela

Construction of a pipe line which will add considerably to the marketable crude oil production of Venezuela was assured the past week with the announcement that the Mene Grande Oil Co., a subsidiary of the Gulf Oil Corp., had let a contract for the construction of a 100-mile pipe line in the eastern part of that country. The line will be 16-inch, said to be the longest line of that diameter ever constructed for the transportation of crude oil.

The line as shown in the accompanying map will be located in the State of Anzoategui and will provide an outlet for crude oil from the Oficina field, the line connecting the field to a terminal under construction at Guanta on the Caribbean Sea. The principal contracts for the construction of the line were awarded to Williams Bros. Corp., Tulsa, and S. D. Bechtel Co., Los Angeles, Calif. Construction work will start April 1, and it is expected that the line will be completed not later than September 1.

Large Reserves

The International Petroleum Co., Ltd. (Imperial Oil, Ltd.) in December 1937, purchased a half interest in the eastern Venezuela operation of the Mene Grande Oil Co., which for several years has been a large producer in the Lake Maracaibo field of western Venezuela. The International company advanced $25,000,000 on the contract at that time. Several months ago it was reported that the Shell interests had entered into an agreement with the International covering the purchase of part of the International share in the eastern Venezuela operation of the Mene Grande company.

Since 1937, the Mene Grande company has been actively developing its eastern Venezuela properties, and with the completion of this pipe line the company will have an outlet for oil reserves which are believed to be large

Exploratory work in the Oficina area started in the twenties on large concessions owned by the company. Wildcat drilling started in 1933, and it became known in 1934 that the company had important oil showings. Development work was not expedited due in part to the fact, it is understood, that the company did not have market outlets for the crude oil. The contract with the International company provided this outlet, as affiliated refining organizations (Standard of New Jersey companies) will take all the production made available by the pipe line.

Since 1937 additional wells have been drilled in the Oficina field, and preparations are under way to carry on a major operation. A new complete camp is under construction involving an expenditure of two million dollars. Several million barrels of crude storage are to be provided at the camp and water terminals. Late reports indicated that 12 wells had been completed at scattered points in the field with several tests drilling. It is expected that sufficient crude will be available when the line is completed to furnish approximately 50,000 bbls. daily.

Several producing horizons have been established in the field. The first well in the field was completed at a depth of 5,995 feet and the second at 5,660 feet. The crude oil had a gravity of 37° A.P.I. While low-gravity crude has been found in the field, it is expected that the higher gravity crudes will be produced, assuring a large supply of high-gravity crude oil for the first time in the history of Venezuela. Present crude oil production in Venezuela is approximately 525,000 bbls. daily. Its average gravity is under 25°.

A roadway which will serve both as a public highway and a right of way for the pipe line has been under construction for several months. The field is located in a plains (llanos) country, but the pipe line near the terminal will cross the Caribbean range of the Andes Mountains. The new terminal at Guanta, which will involve an expenditure of several million dollars, will be the largest deep-sea loading terminal in Venezuela.

New Fields Expected

It is expected that additional fields will be opened in this section of eastern Venezuela. Thirty-five miles northwest of the Oficina field, the Mene Grande company has gas-distillate production in the Santa Ana field. The Texas Petroleum Co. (the Venezuela subsidiary of the Texas Co.) recently spudded in its first Venezuelan test near this field. Fifteen miles northeast of the Santa Ana field, the Standard Oil Co. of Venezuela (Creole Petroleum Corp.) on a concession owned by the Pantepec Oil Co., is drilling the El Roble No. 1. This test is below 9,000 feet and is said to be the deepest ever drilled in South America. A blowout was recently reported at the test.

The 16-inch pipe line will have an initial capacity of 100,000 bbls. daily. Operating with light crude, this capacity can be increased to 160,000 bbls. through the installation of an additional pumping station.

Three Fields

At present, eastern Venezuela, which is believed by many to be one of the world's largest oil reserves, has three fields whose production is being marketed. All these fields are operated by the Standard Oil Co. of Venezuela. The Quiriquire field has a daily production of 72,000 bbls. and the production of the Temblador and Pedernales fields is approximately 5,500 bbls. each. The fields are shown on the accompanying map.

Up to this time, the Oficina development has been carried on by transporting equipment and supplies up the Orinoco River to Ciudad Bolivar and overland from that point. The new roadway to the Caribbean Sea will expedite the handling of all types of materials through the port of Guanta. It has been estimated that more than twenty-five million dollars will have been spent by the Mene Grande company in its eastern Venezuela development before the first oil is marketed through the pipe line.

Considerable equipment is being purchased by Williams Bros. Corp., the S. D. Bechtel Co., and the H. C. Price Co. of Bartlesville, Okla., the last-named have charge of welding. The purchases include a large number of trucks, tractors and welding units. The companies will establish construction camps on the line. Guy S. Connors, vice president of Williams Brothers, will be general manager for both companies and will direct the work from Tulsa.

Government Cooperation With Business Nearer

By HENRY D. RALPH

WASHINGTON, D. C., Mar. 6.—Prospects for government cooperation with business have never been better during the past six years than they are at the present, since it is now the deliberate policy of the administration to promote the fullest possible economic recovery during the coming year and a half.

Some skeptical observers have their fingers crossed and are wondering whether prominent New Dealers will be successful in adhering to their announced intention of putting emphasis on recovery instead of on reform, and they also point out that the motives for the business appeasement program are largely political since the New Deal is obviously making a play for business support in the 1940 elections.

Many business leaders, however, are expressing the view that, regardless of motives, they welcome any and all efforts of the government to improve the conditions under which business can advance to new levels, and political observers are noting that, regardless of the true attitude of some of the leading New Deal spirits in the executive departments, a strong majority in Congress is sincerely determined to put an end to business-baiting and to frame all new legislation with a view to the needs and the desires of business.

No New Taxes

President Roosevelt himself is adhering to his policy of not admitting that business ever did have anything to fear from his administration but it is quite evident he has given the green light to those of his advisors who for some time have been urging a re-orientation of government policies with a view to stimulating new investments, greater production, and increased employment. The opening gun in the new campaign was, of course, the Des Moines speech of the new Secretary of Commerce, Harry L. Hopkins. While Secretary Hopkins said nothing that has not been said many times before by others, this speech was significant because of its source, since it is well known that in its preparation he had the advice not only of many business men but also of a large number of his official associates including that of President Roosevelt himself. Concrete evidence of this was given by the president when he declared that business need look for no new taxes this year and when he took the lead in attempting to bring about a truce between the warring factions in organized labor.

The president's assurance of no new taxes was something of a mystery to Washington since in his budget message he stated the need for approximately $500,000,000 new revenue to cover farm benefit payments and a part of the increased national defense expenditures, as well as continuation of expiring excise taxes. But regardless of what the president may have intended to mean by his off-hand remark about taxes, Congress is taking the statement literally and it is pretty well agreed that no new taxes will be imposed during the present session. There will be a tax bill, however, for the purpose of continuing the federal gasoline tax and other excises which otherwise would terminate on June 30, and it is not unlikely this may become the vehicle for modifying certain features of existing tax laws which are claimed to be a deterrent to business improvement. The Treasury Department appears to have fallen in with the current feeling at the capitol and has suggested that Congress make a study of the entire revenue structure to eliminate provisions which may be holding business back, so it is quite probable Congress will repeal the remnant of the undistributed corporation profits tax and possibly make some improvements in the capital gains and losses division.

The significance of this changed attitude on the part of the treasury may be appreciated when it is recalled that only a year ago the treasury was leading the fight for both these items and that President Roosevelt refused to put his signature on a revenue bill making some modifications in these taxes. In any event, it is a safe bet that during the next two years there will be no more punitive taxes on business and that the revenue laws will not be used as a means of promoting economic reforms.

Labor Act Amendment

Prospects for amendment of the National Labor Relations Act, considered excellent a few weeks ago, have been slightly clouded by two recent events. The first was a series of Supreme Court decisions overruling the National Labor Relations Board and interpreting the act so as to recognize certain rights of employers and to put a curb on strike violence. To a certain extent these decisions nullified the necessity for some of the proposed amendments, although a good many members of Congress feel that these changes should be written into the law. The other complicating factor is the president's attempt to bring about an agreement between the American Federation of Labor and the Congress of Industrial Organizations. The A. F. of L. has insisted on amendments to the Wagner Act, while the C.I.O. has been fighting amendments, and it is possible that part of the price of peace might be an agreement to let the act stand as it is. Moreover, if these two labor groups are able to work out an agreement which will end their jurisdictional and organization disputes there would be much less need for most of the amendments which the A. F. of L. has been seeking.

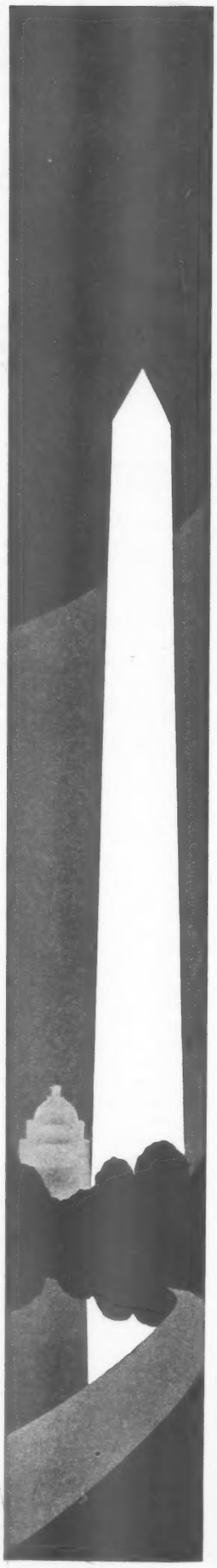
Relief Problem

The relief problem, which has always been something of an uncertain factor in the business picture, is being quietly tackled by a group in the senate and an entirely new system of caring for the unemployed is expected to be developed which should materially reduce federal expenditures by turning much of the load back to the states, and which will also definitely keep relief out of politics. An indication of the attitude of Congress toward relief and increased expenditures in general is shown by the fact that President Roosevelt's request for an immediate appropriation of an additional $150,000,000 for relief, previously denied by Congress, has been pigeon-holed at the capitol with little prospect of immediate action.

Heavy government spending is also becoming less popular with Congress and in spite of the political difficulties real efforts are being made to keep down new appropriations and authorizations. So determined are many of the congressional leaders to make a start toward economy that strong opposition has suddenly arisen to the president's proposal to increase the statutory debt limit to $50,000,000,000.

Wage and Hour Law

Easing of the Wage and Hour law during the present session of Congress is also quite probable. Administrator Elmer Andrews will probably make a definite recommendation that the law be amended to exempt "white-collar workers" employed on an annual basis with a guaranteed monthly salary above a certain amount, and several bills for this purpose have already been introduced. The need for keeping records and paying overtime to employes of this type is one of the chief complaints business men have made regarding the Wage-Hour law, and there is a general feeling the law was aimed primarily at sweat-shop conditions, and should not affect employes who already have reasonable working conditions.



Oil and Gas Laws of Future Will Have Many Changes

By REX G. BAKER
Attorney, Humble Oil & Refining Co.*

While I make no pretense of possessing the gift of prophesy, being neither a prophet nor the son of a prophet, you have asked me to undertake the task of informing you what the oil and gas law of the future will be. This is a task that no one could undertake lightly and you will pardon me if I confess that I approach the subject with fear and trembling. Since only the future can reveal itself to us, you must be content to know that what I say here is merely my best guess as to some changes which will be made in our law of oil and gas.

REX G. BAKER

Time, circumstances, and necessity have developed certain basic legal principles in our law of oil and gas. A few of those principles will be stated. In Texas our laws recognize the ownership of oil and gas in place. This is a qualified ownership. The owner of oil and gas in place can lose his title in the event someone else should drain oil and gas from under his land and reduce them to possession. An oil and gas mineral lease is a conveyance of an interest in land. It is a base, qualified or limited fee simple estate. It may last forever, or it may terminate by lapse of time, by cessation of production or by abandonment. We recognize express covenants in an oil and gas mineral lease under accepted principles of the law of contracts.

In the absence of express understanding, the law implies certain covenants, such as the covenant of reasonable development and the covenant to protect a lease from drainage to a reasonable extent. The law has recognized and developed the so-called rule of capture. As stated by our Supreme Court in the case of Brown v. Humble, it is a rule of convenience. The primary rule is that each landowner is the owner of the oil and gas in place under his land and is entitled to a fair opportunity to produce his share of the recoverable oil in place; however, in the event his neighbor actually should drain oil from under his land, the neighbor who produces the oil as a matter of convenience is recognized as the owner of the oil he actually produces. This rule is born of the practical necessities of the case because of the difficulty which would be encountered in determining just which barrel of oil or which part of any barrel of oil is taken from the land of the neighbor. The so-called rule of capture was developed before the days of proration, before the state intervened and by the exercise of the police power imposed restrictions upon the right of any operator to produce all of the oil he could produce through his wells. It was developed in the days when each operator had the full remedy of self-help; that is to say, was free to drill as many wells as he liked and to produce them to their full capacity.

Some lawyers and judges have looked upon the so-called rule of capture as a vested right. In this I think they are in error. No operator has a vested right to drain the oil of another operator when the latter is prevented from exercising self-help. Fairness and equity would require that our ideas concerning the rule of capture must be radically changed under our conservation statutes and governmental regulation.

In addition to the principles enumerated above and others which have been developed by our courts, we have now a large body of statutory law which we may roughly designate as our conservation statutes. These have grown out of a proper exercise of the police power. Oil and gas are limited, yet essential natural resources. It is of great public concern that they be conserved; that waste be prevented and that correlative rights be protected. Hence, we are able to understand why it is that the oil- and gas-producing states, one by one, have felt impelled to pass more or less comprehensive conservation statutes. Texas, in this respect, has backed and filled, and through trial and error has developed a fairly comprehensive, though not up-to-date, set of conservation laws. The State of New Mexico is a pioneer in passing the most adequate and up-to-date conservation laws. It is significant that the State of Arkansas has recently passed a conservation statute, modeled almost wholly upon the New Mexico statute, except that Arkansas has eliminated an express market demand provision, but has added an exceedingly fair allocation formula. There are now pending in the legislatures of Illinois, Michigan, and Mississippi conservation bills which are modeled very closely upon the New Mexico law.

Our engineers are pioneers in the field of good production and conservation practices. Old rules and practices become outmoded. We learn new truths as we go along. There is always a lag between the progress made by science and research and the acceptance and application of such progress in our laws. Through a painful process of many trials and much error, our legislatures and the courts lumber along and effect changes in our laws which are necessary to protect the public interest and to safeguard the rights of individuals under ever-changing conditions.

(Continued on Page 133)

*Before Houston Junior Bar Association.

Pithy Points From Texan's Talk

Our conservation laws will doubtless be amended to insure a more efficient use of reservoir energy.

The marginal well law as construed and applied by the Railroad Commission has oftentimes led to physical waste and has been the cause of the rankest sort of inequities.

In the actual administration of the rule (37) the commission in many cases has adhered to the exception rather than to the rule.

The decisions of our courts with respect to the administration of Rule 37 are in hopeless confusion. Our Supreme Court has been largely responsible for the confusion.

Let us predict that the legislature will modify the marginal well law by cutting down the top allowable for marginal wells and that the Railroad Commission will administer the law as it is written, applying it to only pumping wells which are marginal wells under the statute.

It is probable it will be necessary to take one or more cases to the Supreme Court of the United States in order to jar our Texas Supreme Court out of its complacency and to compel it to function in protecting the property rights of citizens.

Our courts have gone entirely too far in upholding administrative acts. In the administration of Rule 37 (the commission) has acted often times capriciously, arbitrarily and unreasonably and the courts have given them too much latitude.

TEXAS

THE STATEWIDE PRORATION HEARING in Austin on March 15 is expected to be conducted much along the lines of the December hearing. At that time high company officials of practically all major oil companies were invited to give their views on the industry's position, furnish evidence on their company's gasoline and crude oil inventories and what their policy would be over the next three months in regard to oil stocks. The Railroad Commission this week again invited the companies to be represented. Quarterly meeting of the Interstate Oil Compact Commission has also been called for Austin on the same day to allow compact members to sit in with the Texas commission and thereby become better acquainted with Texas proration problems.

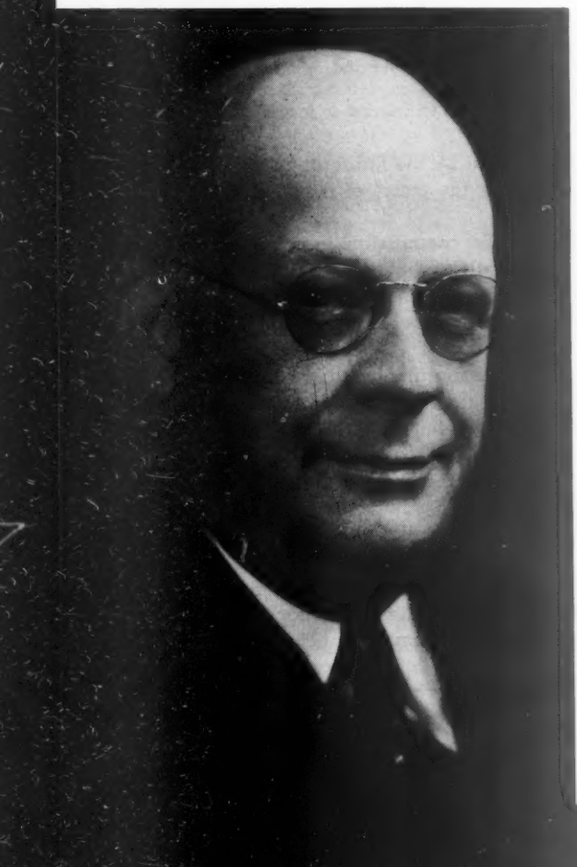
In the announcement this week Commissioner E. O. Thompson stated company officials would again be questioned regarding what their policies would be over the next few months, and on their present stocks of gasoline and crude. The testimony given by the company executives would afford the commission a means of forecasting the demand for fresh production during coming months and furnish a basis for setting field allowables.

Chief subject to be discussed probably will be the market demand forecast for the next three months and whether or not the expected increase in demand will be sufficient to allow lifting of the Saturday shutdowns.

The high rate at which refinery runs have been maintained during the recent months will probably receive a thorough discussion. At the December hearing it was generally agreed that runs in the neighborhood of 3,100,000 bbls. daily during the season of slackened demand would enable the industry to enter the spring season with gasoline stocks in a good statistical position. Refinery runs, however, have averaged well above that figure and as a consequence gasoline stocks are now about 5,000,000 bbls. over what was agreed would be an economic level on March 31, around 80,000,000 bbls.

THE HOUSE COMMITTEE on oil, gas and mining in the Texas Legislature has set for hearing the night of March 15 House Bill 694 by Anderson and Bond, to extend the Railroad Commission's regulatory powers to refineries.

THE HOUSE CONSTITUTIONAL AMENDMENTS committee on Monday voted a 13-to-2 favorable report on a proposed constitutional amendment to levy a 2½ per cent general sales tax, and to increase natural resources taxes by adding the following levies: Sulfur, 25 cents a ton in addition to the present levy of $1.03; natural gas, three-fourths of 1 per cent, and oil three-fourths of 1 cent a barrel to the present tax of 2¾ cents, the amounts changing to percentage when the price exceeds $1 a barrel. The money would be used in the state's social security program.



THEO. A. MORGAN, who has succeeded E. G. Dahlgren as conservation director for the Kansas Corporation Commission, has had wide experience in conservation work in Kansas, having been conservation director during former Governor A. M. Landon's term. Before that Mr. Morgan was an independent operator in Kansas and elsewhere in the Mid-Continent, and was engaged in independent work during the past two years. Mr. Dahlgren will remain as technical advisor to the commission.

KANSAS

THE LOWER HOUSE of the Kansas Legislature on Monday, March 6, passed a bill to extend Kansas' membership in the Interstate Oil Compact Commission and sent it to the senate. Gov. Payne H. Ratner had asked for the passage of the bill.

THEO. A. MORGAN has been appointed director of the oil and gas conservation department of the Kansas Corporation Commission, succeeding E. G. Dahlgren.

STATE CAPITALS

The appointment was announced by Governor Payne H. Ratner, who also announced the appointment of Mr. Dahlgren as technical advisor. Mr. Morgan held the position of director once before, resigning to reenter the oil business.

THE KANSAS CORPORATION COMMISSION has fixed the state allowable daily crude oil production at 156,850 bbls. for March.

The estimated market demand of Kansas oil fields for March as recommended by the U. S. Bureau of Mines was 150,300 bbls., but purchasers submitted nominations for 158,429 bbls. daily.

GEORGIA

THE GEORGIA STATE SENATE decisively defeated a bill to take the bridle off oil and mineral lease transactions in Georgia, but life was restored to the measure by having it tabled before the result of the vote was announced.

Under the present status the bill may be taken off the table and put back on the calendar by a majority of a quorum.

Senator Hadley Brown of Brunswick, author of the measure, denied a charge of Secretary of State John B. Wilson that the bill would effectually repeal all regulations of the Georgia securities act. He insisted that the measure would not affect stocks and bonds.

OKLAHOMA

ART L. WALKER, SECRETARY of the Interstate Compact Commission, with headquarters in Oklahoma City, announced that owing to the short time between Colonel Thompson's announcement and the date of the compact meeting it would be impossible to send the usual mailed invitations to attend the Austin meeting on March 15. Officers of the commission are hopeful that oil men from all parts of the country will attend. Former Governor Holloway will represent Governor Phillips at the meeting.

CALIFORNIA

CENTRAL COMMITTEE OF CALIFORNIA OIL Producers set the allowable production for March at 600,000 bbls. per day with the usual 5,000 bbls. leeway to take care of contingencies. The most important development in the new curtailment program is that crude oil production within the state has not been reduced to the objective. Dana Hogan, president of Hogan Petroleum Co. and president of San Joaquin Valley Oil Producers Association, is considering the advisability of requesting the Central Committee to set 150 bbls. per day as the top for any well in the state instead of the present 300 bbls. maximum. The fact-finding committee appointed at the last general meeting of operators in Los Angeles last December advised the emergency executive committee that its findings and recommendations would be in the latter committee's hands on Tuesday, March 7. The emergency executive committee of which E. E. Pyles is chairman has called a general meeting of all producers for March 9 in Los Angeles.

Two large buyers have indicated that their present storage facilities will be completely filled within the next three months if production continues at the present rate. About 45,000 bbls. of crude oil production has been shut in since the last general meeting in December but the objective of 600,000 bbls. has not yet been reached as production has been averaging around 620,000 bbls. per day since the start of 1939.

ILLINOIS

JOHN PUGH, OF CENTRALIA, president of the Illinois Independent Oil Producers and Royalty Owners Association, announced on Friday, March 3, the organization had taken a definite "stand for orderly development of the oil resources of Illinois." The Illinois-Indiana Oil Producers Association, an older organization, with headquarters in Robinson, Ill., has all along favored orderly development and the enactment of legislation that will provide for the conservation of the state's oil and gas resources.

Mr. Pugh pointed out that some operators are able to sell only 20 to 50 bbls. a day from each well at the market price of $1.15 a barrel, but that other operators are selling several hundred barrels a day per well from offset wells for as little as 50 to 65 cents a barrel.

Mr. Pugh said he was convinced the legislature will be favorable to a program that will serve the best interests of "all concerned in the state."

Frank Egan, former secretary-treasurer of the Illinois Independent Oil Producers and Royalty Owners Association, resigned from that group to fill a similar position with a new association opposing oil regulation by law. It will be known as the Petroleum Association of Illinois.

MISSOURI

A BILL TO REGULATE THE PRODUCTION of oil and gas in Missouri was introduced in the house last week.

The measure would prohibit production of oil under conditions defined as wasteful and would require all oil men to file notice with the state geologist of their intention to drill.

the OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

Published weekly by The Petroleum Publishing Company at Tulsa, Oklahoma

Within the Law

The action of Arkansas in passing a conservation law and announcing its intention to join the Interstate Oil Compact Commission is encouraging. Not only because it adds another state in position to do its full share in carrying out the conservation program, but because the act itself reflects the fact that those responsible for its passage realized the increasing importance of the new operating practices in the industry.

Arkansas found through its own experience that it is absolutely necessary to have an adequate conservation law to assure the development of its oil reserves, but before acting, made a careful study of the conditions and laws in other states, incorporating the best features in its own statute.

The Arkansas law in some respects goes farther than those of any other state in making provisions for the application of operating methods which are an essential part of any sound conservation program.

We are moving more rapidly than ever before along technical lines. Every major development inevitably will have a hearing on the application of conservation principles.

As one example we have entered a period in which there is a distinct trend on the part of operators to return gas to the producing horizons rather than blowing it into the air or disposing of it as fuel for small return. There are other types of recycling operations. This not only eliminates waste but also increases recovery of oil and makes for more efficient operations. Likewise, there is a trend toward returning water in water-drive fields.

These approved operating principles must be supported by improved conservation laws. Every operator should bear his share of the cost of a definite conservation program. We are getting farther and farther away from wasteful primitive practices. Operations in a given area must be considered as one complete operation with everybody doing his proportionate part in operating that unit upon the most efficient principles.

In this connection there has been a tendency to leave everything to the administrative bodies and there has been criticism of some of the resulting actions.

This raises the question whether some of the older states have not been dilatory in keeping up with the progress in the industry and whether the legislatures and even the courts have not been inclined to permit administrative bodies to cope with the situation and exercise authority which had not been given by law.

This may be continued to a certain point and then run up against a decision which will outlaw many of the things the state administrators have been doing, which, not being specified in the original law, gave rise to complaints of unfairness.

This is no particular reflection upon these administrative bodies because they apparently have done the best they could, but it does justify a demand for a legal housecleaning and revamping of the conservation laws in many of the states in order to keep up with present day technical knowledge and practices.

Many of the administrative bodies have themselves sensed this situation and realized the necessity of new laws which will give them legal authority to do those things which obviously must be done. They realize the dangers inherent in exercising administrative acts which will not be supported by judicial interpretation of existing laws.

There is no question that laws can be made to apply to these new conditions and that the courts will recognize their constitutionality. Our system of government recognizing property rights provides for that very flexibility.

National Asphalt Conference Held at Los Angeles

LOS ANGELES, Calif., Mar. 4.—The twelfth National Asphalt Conference held in Los Angeles under the auspices of the Asphalt Institute February 27 to March 3, represented a triple 20-year celebration, the twentieth year since the start of the federal highway building program, the twentieth year since the adoption of the gasoline tax and the twentieth year since the Asphalt Institute was formed.

J. S. Heim, Standard of New Jersey, New York, president of the Asphalt Institute, sounded the keynote of the meeting that, "New concepts of human life, which make for economic and social interdependence, have evolved from the development of highways and automotive transportation."

The program covered all phases from highway programs to the use of asphalt in airports and from the rocks and other mineral aggregates to cut-back asphalts, emulsified asphalts and asphalt cements. Equipment manufacturers held two sessions Thursday, J. S. Bright, chief construction engineer, U. S. Bureau of Public Roads, being chairman of one, and Earle A. Burt, maintenance engineer, Los Angeles County Road Department, chairman of the other. L. I. Hewes, deputy chief engineer, U. S. Bureau of Public Roads, told members that, "Despite the tendency to run belt highways around major cities, express boulevards are urgently needed to convey local traffic into the centers of towns."

It was brought out during this meeting that surplus cotton in the South is expected to be used for soil stabilization beneath the pavement, although this utilization unquestionably will result in increased plantings of cotton in California which for 10 years has shown an increase in production of long staple cotton.

The use of asphalt in construction of airports received considerable attention. J. E. Buchanan, dean of the college of engineering, University of Idaho, told the conference that, "It has been demonstrated that dustless, mudless, smooth and uniformly strong runways are essential in airports. Therefore, asphalt is destined to play an important role in the problems which confront the airports. There is need for larger airports to meet national defense requirements, and the urgent need for coordinating extension of civil air transportation evidenced by creation of the Civil Aeronautics Authority."

Officers of the Asphalt Institute are J. S. Heim, president; J. A. Blood, vice president; J. E. Pennybacker, managing director, and Dan B. Miller managing engineer of the Pacific Coast Division.

Bernard E. Gray, chief engineer of the institute, predicted that the highway of the near future will have a wide separation between east and west, or north and south, opposing flows of vehicles. Each ribbon of pavement will be of sufficient width to enable faster vehicles to pass the slower ones with ease and safety. Alongside this two-way separated artery will probably be constructed another highway for freight truck duty as engineers foresee the need of removing the truck from passenger highways in populous areas to facilitate the flow of lighter cars. Wide separations between the two passenger car pavements will be utilized for public parks or otherwise beautified. Speed limits at that time will be increased to 50 and 55 miles per hour but not beyond the latter because the average human reaction time to prevent accidents is too slow.

Mid-Continent Strike Still Without Settlement

On the surface there are no indications that the strike of the Oil Workers Union against the Mid-Continent Petroleum Corp. in Oklahoma is approaching a settlement. Efforts continue to be made on the part of Gov. Leon C. Phillips of Oklahoma and J. C. Cooper, conciliator of the U. S. Department of Labor, toward a compromise. Proposals drawn for consideration by both sides, include: (1) Demand for the check-off shall be dropped; (2) A system of examination and grading as a substitute for the seniority demand and the company's policy of grading by supervisors; (3) Wage adjustments in the water and testing departments may be deferred; (4) Compromise of the union demand for arbitration. Settlement on retaining strikers charged with violence is the most serious obstacle.

Acts of vandalism have continued in the past week which took the form of damage to property of non-striking employes, blasting of pipe lines and stoning of filling stations.

Madison Case Motions Heard at Danville

DANVILLE, Ill., Mar. 3.—Federal Judge Walter C. Lindley heard motions preliminary to the trial of nine major oil companies and eight individuals scheduled to begin in Madison, Wis., October 2. Defendants are those named in the second indictment returned at Madison.

The defense withdrew motion to quash the indictment and Judge Lindley took under advisement a defense motion to require the Government to confine the case to one count of conspiracy. He allowed motions for a bill of particulars and a list of government witnesses.

Defendants to be tried are Gulf Refining Co. and its vice president, William V. Hartman; Texas Co. and W. S. S. Rogers, New York, president, and H. W. Dodge, New York, vice president, and S. B. Wright, Chicago; Barnsdall Refining Corp., and E. B. Reeser, Tulsa, president; three Globe Refining companies and I. A. O'Shaughnessy, Minneapolis and Chicago, president; National Refining Co., Cleveland; Tide Water Associated Oil companies and Edward L. Shea, New York, president, and J. W. Warner, Tulsa, vice president, and Deep Rock Oil Co.

McEvoy Co. Reorganized By Houston Group

A reorganization of J. H. McEvoy & Co., under the name of McEvoy Co., has been announced. The company, one of the oldest in Houston, Tex., was established in 1906. It manufactures a wide range of oil industry products.

The officers of the new company are president, Gus S. Wortham, president of American General Insurance Co. and president of Longhorn Portland Cement Co.; executive vice president and general manager, George S. Watson, president of Watson Co., builders, and formerly president of Mosher Steel Co.; vice president, J. H. McEvoy; secretary-treasurer, Charles N. McClendon. The board consists of the officers and George A. Butler of Kayser, Liddell, Benbow & Butler of Houston, Tex. The plant superintendent is A. Henderson.

Obituaries

JOHN CONRAD GALLAGHER, 56, died February 11, in Yenangyaung, Upper Burma, as the result of an automobile accident. He was field manager of the Pyinma Development Co., Ltd., jointly owned by Indo Burma Petroleum Co., Ltd., and British Burma Petroleum Co., Ltd., with property at Chauck, Upper Burma. He was born in Foxburg, Clarion County, Pennsylvania, in 1882 and moved in 1890 to California, where he worked on the first well drilled by the late E. L. Doheny. He moved to Bakersfield and was employed as a driller by Kern River Oilfields, Ltd.; thence to Trinidad, B.W.I., and Venezuela for nine years and finally to Burma in 1921 as drilling foreman for Indo-Burma Petroleum Co., Ltd., and later as field manager of Pyinma Development Co.

John B. Kelsey Celebrates His 101st Birthday

John B. Kelsey, Harlingen, Tex., celebrated his 101st birthday February 14. Four generations are represented in the photograph which includes his son, Dana H. Kelsey, vice president Sinclair Prairie Oil Co., John H. Kelsey in charge of the Sinclair land office at Midland, Tex., and his son David H. Kelsey.

THE MARKETS*

CRUDE OIL: *Pennsylvania Grade crude oils advanced 12 cents per barrel except in Ohio, where increase was 10 cents. It was the third advance in this grade crude in 1939. Effective date of new crude pricing plan applying to 7,000 bbls. daily of stripper production in Oklahoma and Kansas was postponed indefinitely. The plan provides for a reduction of approximately 22 cents per barrel in crude price schedules.*

REFINERY: *Pennsylvania Grade lubricants for both export and domestic movement advanced. Refinery gasoline stronger in several areas. Heavy fuels strong at Gulf Coast points. Distillate weak.*

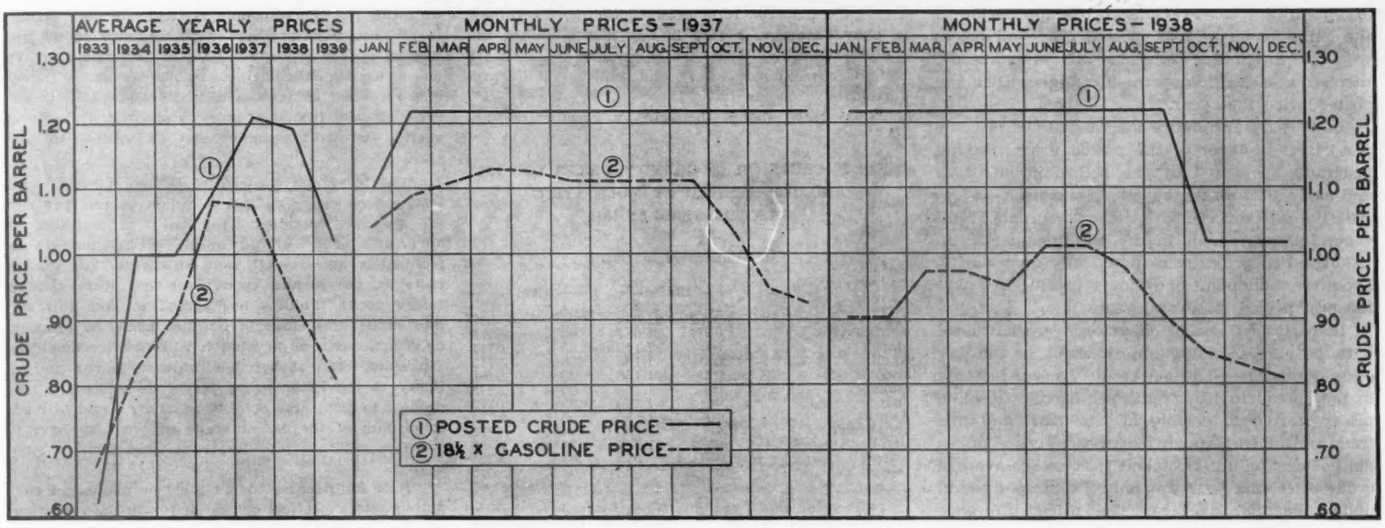
TANK-WAGON AND POSTED DEALER: *No general changes.*

FINANCIAL: *Common oil stocks, after dull trading week, close at slightly higher levels. Average of 30 representative stocks for week ending March 4: High, 27.93; low, 26.95; close, 27.90. Week ending February 25: High, 27.75; low, 26.85; close, 27.37.*

ANNUAL REPORTS†

	Net income	Earned per share
Barnsdall Oil Co.:		
1938	$2,837,897	$1.26
1937	1,903,029	0.84
Phillips Petroleum:		
1938	9,032,000	2.03
1937	24,113,874	5.42
Pacific Western Oil:		
1938	1,217,378	1.22
1937	1,388,710	1.38
Ryan Consolidated:		
1938	84,775	0.26
1937	138,463	0.46

*Additional information in Market Section.
†Furnished by Carl H. Pforzheimer & Co., New York.



Revive N.R.A. Plan As Basis for Crude Oil Schedule

By C. O. WILLSON

A plan suggested by the N.R.A.'s oil administration in 1933 providing for a definite relationship between the price of refinery gasoline and crude oil schedules, was revived the past week when National Refining Co. announced its intention to start buying its crude oil supplies in Oklahoma and Kansas on a new basis.

The National's announcement, which is published in full at the conclusion of this article, in brief provides that the price paid producers at their wells will be determined by multiplying the Oklahoma (Group 3) gasoline regular grade price by 18½. The current gasoline price on which this plan is based is 4⅝ cents per gallon. This would mean a price of 80.93 cents per barrel of 36° gravity, a reduction from the present posted price of $1.02 paid by buyers in Oklahoma and Kansas.

At a meeting held in Tulsa Tuesday, stripper well operators in Oklahoma and Kansas announced their opposition to the new plan. Up to Tuesday no other refining organization had make known its intention to adopt the new prices.

It was announced at the Tuesday meeting by Edgar G. Hill, president of the National company, that the effective date of the new price schedule would be postponed until conferences with producers have been held. It was originally planned to make the price change effective March 10. It was indicated at the meeting some plan might be worked out with producers and other crude buyers which would postpone the price change indefinitely.

The company purchases approximately 200,000 bbls. monthly, most of the crude coming from stripper fields. The crude is transported to its refinery at Coffeyville, Kans., in its own pipe line system. In explanation of its action the company stated that its losses from its January operations averaged 20.5 cents per barrel. These losses are in line with those reported recently by other refining organizations in the Mid-Continent.

The plan was announced by Mr. Hill who recently took over his duties as president of the National company. Previously for several years Mr. Hill was an executive of Ford, Bacon & Davis, widely known engineering firm, which has built some of the major oil and natural gas pipe lines in this country. The National company is one of the oldest independent refining organizations in the oil industry, with headquarters in Cleveland, Ohio. In addition to the 7,500-bbl. refinery at Coffeyville, the company has two refineries in Ohio.

N.R.A. Plan

The 18½ relationship between crude oil and gasoline prices was suggested after a $1 per barrel base for crude oil was established in the fall of 1933 shortly after an N.R.A. unit for the oil industry had been formed. Earlier in 1933 crude oil and gasoline had been at exceptionally low levels. Following the increase in the price of crude it was suggested that refiners advance their tankcar gasoline price to a point where the price per gallon when multiplied by 18½ would give the $1 per barrel effective for crude oil.

The 18½ figure was arrived at by N.R.A. officials through a study of the average relationship between Mid-Continent crude oil and refinery gasoline prices over a period of years, previous to 1933.

This price relationship was to be effective in Oklahoma with the same ratio to be applied in other refining areas, consideration being given to differences in transportation costs.

It was pointed out at that time that this arrangement, which was an emergency attempt to establish a fair relationship between crude and refinery product quotations, did not take into consideration price changes in products other than gasoline. However, no serious objection to the plan was voiced at that time, as most refiners felt that if the ratio was enforced it would assure them an adequate profit from their refinery operations.

Gasoline prices were advanced to the desired level in Oklahoma and other points, but quotations started to recede within a few weeks. There was considerable complaint from refiners during the N.R.A. code days and several efforts were made to advance the gasoline prices.

The accompanying tables and chart were prepared to show what the prices for crude oil would have been had the 18½ plan been effective starting in 1933, together with a comparison with the actual posted prices over that period.

Table 1 shows the average relation by years. According to this table, the posted prices actually paid to producers for 36° gravity crude were higher than the 18½ plan every year with the

TABLE 1—AVERAGE POSTED PRICE FOR 36-GRAVITY CRUDE OIL IN MID-CONTINENT COMPARED TO SCHEDULE DETERMINED BY MULTIPLYING GASOLINE PRICE BY 18½

(Data illustrated in chart)

	18½ × gasoline price*	Posted price‡	Difference†
1933	$.6715	$.62	$.0515
1934	.8214	1.00	.1786
1935	.9102	1.00	.0898
1936	1.0878	1.10	.0122
1937	1.0767	1.21	.1333
1938	.9305	1.19	.2595
1939 (2 months)	.8117	1.02	.2083
5-year avg. 1934-1938	.9653	1.10	.1347

*Gasoline price is average weekly tankcar price for regular grade (house-brand) basis Oklahoma (Group 3). †Posted price greater than (18½ × gasoline price) with exception of 1933. ‡Paid by principal buyers.

exception of 1933. Previous to the application of the N.R.A. code in 1933, posted crude oil prices were exceptionally low, and this accounts for the fact that the 18½ price was higher than the posted price that year.

In 1934 the difference increased to 17.86 cents per barrel in favor of the posted price. Buying programs sponsored by the N.R.A. in late 1934 and early 1935 aided the gasoline market and in 1935 the difference decreased to 8.98 cents. With general improvement in the gasoline market in 1936 the two prices were practically on a parity. From the standpoint of refinery profits, 1936 was the best period in several years.

In early 1937 crude oil prices were advanced with no corresponding improvement in the gasoline quotations. The net result was an increase in the spread to 13.33 cents per barrel. Gasoline prices started to decline in late 1937, and this trend continued through 1938. Posted crude prices did not decline until October, 1938, so the average crude price that year was only 2 cents per barrel under the 1937 average. The price difference spread to 25.95 cents.

The 20-cent price reduction effective in October reduced the difference that amount and that explains the fact that the spread between the two prices, the first two months of this year, was less than in 1938.

The situation by months for 1937 and 1938 is shown in Table 2 and also illustrated in the chart. This table shows that while the posted prices for crude oil were unchanged from January 28, 1937, to October 12, 1938, gasoline prices were changed either up or down most of the months and this fact would have been reflected in the crude prices had the new pricing plan been effective. The difference between the two was nearly 35 cents per barrel just before the 20-cent reduction in posted crude prices was made effective in October, 1938.

National's Announcement

The following letter was sent to producers in Oklahoma and Kansas by the National Refining Co. dated March 1:

"We are faced with the necessity of either paying a price for the crude that we purchase from you for our Coffeyville refinery, which is in line with the prices at which we are able to sell the products of that refinery, or definitely considering closing down the plant after our present inventories of crude oil have been used up.

"During the month of January, 1939, we purchased 199,932 bbls. of crude at an average cost of 98 cents per barrel. We ran to stills 201,523 bbls.

"Our operating loss for the month was $41,396.19, or an average of 20.5 cents per barrel of crude run to stills. In determining these figures, the prices at which products not sold and carried to inventory were figured were, in all cases, no less than those at which we could have bought the corresponding products in the open market.

"It must be obvious to any thinking person, that no company, particularly one the size of this company, can long sustain any such operating loss at any one refinery and stay in business. For that reason, we propose to pay you, for the balance of the year 1939, a price for the crude oil which we purchase from you, which will be computed each month by multiplying the daily average of the low tankcar spot price f.o.b. Group 3 (Oklahoma) refineries for regular or house-brand gasoline (now designated as 70-72 octane gasoline) as quoted in the Chicago Journal of Commerce, for that month, by 18½. The price computed will apply for crude oil of 36 A.P.I. gravity. For other gravities, the same differential in cents per barrel which we now pay, will apply to the price computed as above for 36-gravity crude. This means that if the daily low quotations of 70-72 octane gasoline, as quoted by the Chicago Journal of Commerce averages 4⅜ cents per gallon f.o.b. Group 3 (Oklahoma) refineries, as at present, we will pay 18½ times that amount or 80.9375 cents for each barrel of 36-gravity crude we buy, based on 97 per cent tank tables.

"If the price of 70-72 octane gasoline, determined as above, averages higher in any month during the year, the same multiplier will apply and the price we pay for crude purchased in that month will be proportionately increased.

"Conversely, should the price of gasoline decline, we will pay correspondingly less for our crude.

"Within the last year or so we have found that the amount of crude available to our gathering system in Kansas and Oklahoma, which serves the Coffeyville refinery, has been steadily increasing. We cannot agree to take from you more crude than we need to operate the plant, assuming that we continue to operate it.

"The maximum capacity of the plant, when operated economically, is 7,100 42-gallon barrels per day. We are now operating it at that rate, and through an arrangement with the Phillips Petroleum Co., are fortunately able to sell them at slightly less than it costs us, the surplus crude over and above our refinery needs. Phillips has agreed to take this surplus crude until June 9, but has made no promises or commitments as to what it will do after that date. Therefore, even though we continue to run the refinery at the lower prices for crude which we now propose to pay, there must be some arrangement made to dispose of the excess crude or we may have to again prorate our pipe line runs when Phillips stops buying.

"It is our purpose to put the new method of computing prices in effect on March 10. In the meantime, we shall be glad to discuss the situation with you and open our books to you if you desire, that you may see our situation in its full seriousness.

"Signed

"EDGAR G. HILL."

TABLE 2—CRUDE OIL (36-GRAVITY) PRICES FOR 1937 AND 1938 DERIVED BY MULTIPLYING GASOLINE PRICE BY 18½

(Data illustrated in chart)

	1937		1938	
	1	2*	1	2*
January	$.05625	$1.041	$.04⅞	$.9019
February	.05⅞	1.087	.04⅞	.9019
March	.06	1.110	.05¼	.9712
April	.06⅛	1.133	.05¼	.9712
May	.06⅛	1.130	.05⅛	.9490
June	.06	1.110	.05½	1.0175
July	.06	1.110	.05½	1.0175
August	.06	1.110	.05¼	.9712
September	.06	1.110	.04⅞	.9019
October	.05⅝	1.041	.04⅝	.8556
November	.05⅛	.949	.04½	.8325
December	.05	.925	.04⅜	.8093

1—Regular grade gasoline (house-brand) per gallon f.o.b. Oklahoma (Group 3) in tankcars. Gasoline price is for last Tuesday of each month.

2—Price of crude oil per gallon derived by multiplying the gasoline price per gallon by 18.5.

*Changes in posted prices for 36-gravity crude oil in the Mid-Continent: January 1, 1937, $1.10; January 28, 1937, $1.22; October 12, 1938, $1.02.

Equipment and Engineering Papers at Houston Oil Show

Oil men who want comprehensive data on the application of and results secured with oil equipment and oil field service will be able to discuss the technical features of tools and their operation at the meetings sponsored by the drilling and production committee at the Oil-World Exposition in Houston, Tex., from April 24 to 29, inclusive.

Many exhibitors have submitted abstracts of papers they wish to present. These papers will be passed on by the drilling and production committee which consists entirely of men from oil companies and faculties of universities specializing in petroleum engineering. While final selection of subjects to be discussed has not yet been made, the following will be covered: "Power Requirements for Gulf Coast Drilling,,; "The Diesel Engine in Oil Field Service"; "Maintenance and Lubrication of Bearings in Oil Field Equipment"; "Positive Control of Lubricating Conditions in Diesel Engines"; "Air Cleaners for Oil Field Engines"; "Water Treatment in the Oil Fields"; "A New Method of Orientating Cores (Polar Core Orientation)"; "Core Drills Applied to Oil Field Service"; "The Baroid High-Pressure High-Temperature Drilling Mud Filtration Tester"; "Some Defects Found in Hard-Faced Drilling Tools—and Their Remedies"; "The Tuboscope"; "Resilient Materials of Construction for the Petroleum Industry"; "Recent Developments in Oil Well Cements"; "Properties and Uses of 'Securaloy' as Applied to Oil Well Production"; "Squeeze Cementing Before Production to Reduce Gas-Oil Ratios"; "New Application of Chemistry to Oil and Gas Wells"; "Locating of Water Entries in Oil Wells by Electrical Means"; "Modern Beam Pumping Insures Low Cost Oil Recovery"; "Reda Submergible Electrical Centrifugal Oil Well Pumping Units"; "Development and Future Trend of Controlled Directional Drilling"; "Common Practice in the Preparation and Procedure of Controlled Directional Drilling"; "Controlled Vertical Drilling Methods."

The additional educational feature provided by these meetings will, Ed G. Lenzner, general manager of the Oil-World Exposition, says, make the visitors appreciate to the greatest extent possible the value of making a thorough study of the equipment brought together at great expense for their inspection. Through the efforts of George B. Corless the plan was perfected and the drilling and production committee organized. Work of the committee on programs for the meetings has progressed rapidly and the meetings will be an outstanding event of the show. The committee consists of George B. Corless, chairman, Humble Oil & Refining Co.; M. Albertson, Shell Petroleum Corp.; Prof. Benjamin C. Craft, Louisiana State University; Prof. Howard E. Degler, University of Texas; Joe J. King, United Gas Pipe Line Co.; Ed Lenzner, ex-officio, Oil-World Exposition; Arthur G. Levy, Fohs Oil Co.; George L. Nye, Tide Water Associated Oil Co.; Prof. J. H. Pound, Rice Institute; Prof. Harry H. Power, University of Texas; James U. Teague, Humble Oil & Refining Co.; Prof. Harold Vance, Texas A. & M. College, and Joseph Zaba, Rio Bravo Oil Co.

GEORGE B. CORLESS

Chairman, Exposition Drilling and Production Committee

Petroleum Geologists Prepare Oklahoma City Program

The American Association of Petroleum Geologists will hold its twenty-fourth annual meeting at the Skirvin Hotel, in Oklahoma City, March 21, 22, 23 and 24. As in recent years, this gathering attracts all branches of exploratory science applied to oil and gas. The Society of Economic Paleontologists and Mineralogists holds its annual meeting at the Skirvin on March 23, and the Society of Exploration Geophysicists meets in a three-day session at the Huckins Hotel, March 21, 22, and 23.

The Oklahoma City Geological Society, the Shawnee Geological Society, the Ada Geological Society, and the other geologists of western Oklahoma will act as hosts.

The program of about 70 papers has been grouped by Chairman J. T. Richards of the Gulf Oil Corp., and his assistants of the technical program committee, into six half-day sessions:

Wednesday morning, March 22—General session. Chairman, J. T. Richards, Gulf Oil Corp., Oklahoma City.

Wednesday afternoon, March 22—Permian symposium. Chairman, Ronald K. DeFord, Argo Oil Corp., Midland, Tex.

Thursday morning, March 23—Mid-Continent Pennsylvanian. Chairman, N. W. Bass, U. S. Geological Survey, Tulsa.

Thursday afternoon, March 23—Economics and Recent Developments. Chairman, R. J. Riggs, Stanolind Oil & Gas Co., Tulsa.

Friday morning, March 24—Mississippi embayment. Chairman, D. Perry Olcott, Humble Oil & Refining Co., Houston, Tex.

Friday afternoon, March 24—Eastern interior basin. Chairman, A. H. Bell, Illinois Geological Survey, Urbana, Ill.

Tuesday, March 21, the day preceding the technical program, is fully occupied with committee and business meetings.

A pre-convention field trip is arranged to the Permian outcrops, beginning at Chickasha, Okla., Sunday, March 19, and ending at Oklahoma City, Tuesday, March 21. A post-convention trip will be made to the Arbuckle Mountains and the Ardmore basin on Saturday, March 25.

Schedules of Events

Monday, March 20

2:00 p.m. Registration. Lobby, Skirvin Tower Hotel.

7:00 p.m. Executive committee; Donald C. Barton, chairman. President's Suite, Skirvin Hotel.

Tuesday, March 21

8:00 a.m. Registration. Lobby, Skirvin Tower Hotel. Scientific exhibits. Mezzanine, Skirvin Tower Hotel.

9:00 a.m. Committee on Application of Geology; Frank R. Clark, chairman. Parlor G, Mezzanine, Skirvin Hotel.

10:00 a.m. Technical session, Society of Exploration Geophysicists, Huckins Hotel. Executive and Finance Committee, A.A.P.G., President's Suite. Committee for Publication, F. H. Lahee, chairman; Japanese Room, Mezzanine, Skirvin Hotel.

11:00 a.m. Research Committee, A. I. Levorsen, chairman; Green Room, Mezzanine, Skirvin Hotel.

2:00 p.m. Annual Business Committee, Edgar W. Owen, chairman; Crystal Room, Mezzanine, Skirvin Hotel. Technical session, Society of Exploration Geophysicists, Huckins Hotel.

6:30 p.m. Informal dinner for geologists and ladies, sponsored by Research Committee; Empire Room, Skirvin Hotel.

8:00 p.m. Open meeting, Research Committee, A. I. Levorsen, chairman; "The Tectonic Map of the United States," Crystal Room, Mezzanine, Skirvin Hotel.

Wednesday, March 22

7:30 a.m. Registration. Lobby, Skirvin Tower Hotel.

8:00 a.m. Scientific exhibits. Mezzanine, Skirvin Tower Hotel.

9:30 a.m. Opening general session. Address of welcome.

9:30 a.m. General technical and joint session, American Association of Petroleum Geologists, Society of Economic Paleontologists and Mineralogists and Society of Exploration Geophysicists; Silver Glade Room, Skirvin Tower Hotel. Address of welcome by Reford Bond, Corporation Commission of Oklahoma.

1:30 p.m. Permian symposium technical session. Silver Glade Room, Skirvin Tower Hotel.

2:00 p.m. Technical session, Society of Exploration Geophysicists; Huckins Hotel.

3:00 p.m. Ladies Get-Acquainted, Renew-Friendship Tea. Oklahoma Club.

4:45 p.m. Announcements, nomination of officers, appointment of committees. General session. Silver Glade Room, Skirvin Tower Hotel.

8:00 p.m. Permian round table. Crystal Room, Mezzanine, Skirvin Hotel.

Thursday, March 23

8:00 a.m. Registration. Lobby, Skirvin Tower Hotel. Scientific exhibits, Mezzanine, Skirvin Tower Hotel. Committee on Geologic Names and Correlations, J. G. Bartram, chairman; Japanese Room, Mezzanine, Skirvin Hotel. Breakfast meeting. Ballot boxes open until 5 p.m. Headquarters booth, Mezzanine, Skirvin Tower Hotel.

9:00 a.m. Mid-Continent Pennsylvanian technical session. Silver Glade Room, Skirvin Tower Hotel.

10:00 a.m. Technical session, Society of Economic Paleontologists and Mineralogists. Crystal Room, Mezzanine, Skirvin Hotel. Technical session, Society of Exploration Geophysicists, Huckins Hotel.

1:00 p.m. J. W. Bostick golf tournament. Oklahoma City Golf and Country Club. Green fees, $2 per person.

1:30 p.m. Economics and Recent Development technical session, Silver Glade Room. Technical session, S.E.P.M., Crystal Room. Technical session, S.E.G., Huckins Hotel.

2:00 p.m. Ladies. Play portrayal by Mrs. Madeline Douglas Bullard, at the Y.W.C.A.

3:00 p.m. Annual business meeting, S.E.P.M., Crystal Room.

7:30 p.m. Banquet, followed by dancing. Silver Glade Room, Skirvin Tower Hotel. Per plate, $2.50 plus tax.

Friday, March 24

8:00 a.m. Scientific exhibits. Mezzanine, Skirvin Tower Hotel.

9:00 a.m. Twenty-fourth annual business meeting. Announcement of elections. Silver Glade Room, Skirvin Tower Hotel.

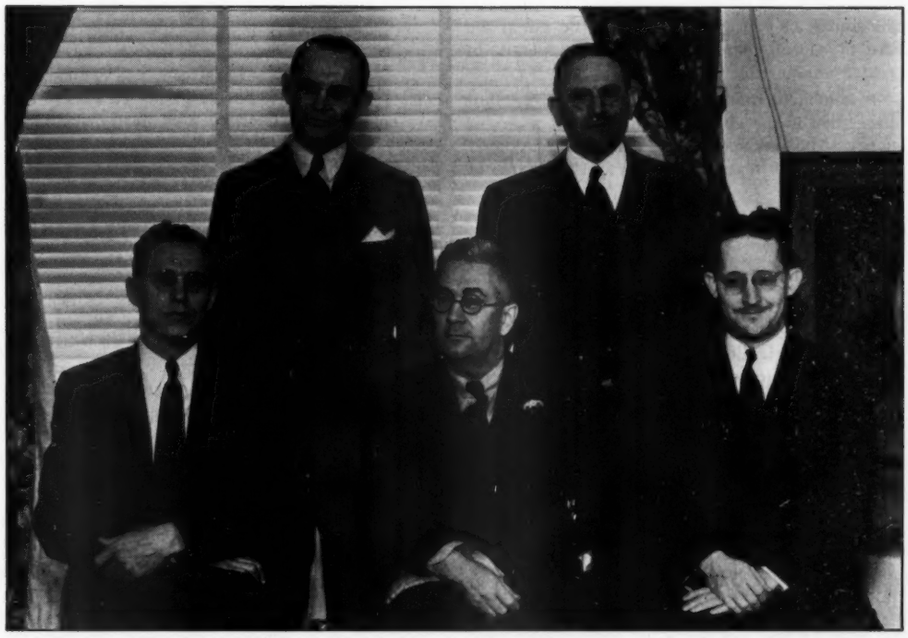
9:45 a.m. Mississippi embayment technical session. Silver Glade Room.

10:00 a.m. Executive committees, 1938 and 1939, joint meeting. President's Suite.

1:30 p.m. Eastern interior basin technical session. Silver Glade Room.

Saturday, March 25

Morning. One-day field trip to the Arbuckle Mountains and the Ardmore basin. Conducted by Charles E. Decker, University of Oklahoma.



Standing: *H. B. Fuqua, Gulf Oil Corp., Fort Worth, Tex., past president A.A.P.G.; W. A. Ver Wiebe, University of Wichita, Kans., editor.* Seated: *Harold W. Hoots, chief geologist, Richfield Oil Co., Los Angeles, vice president; Donald C. Barton, research geologist, Humble Oil & Refining Co., Houston, Tex., president; Ira H. Cram, chief geologist, Oklahoma and Kansas, Pure Oil Co., secretary-treasurer*

SMACKOVER LIME

(Continued from Page 25)

tends to attract objects to the center of the earth. This force causes oil to trickle out of a saturated sand into the well bore to the bottom of the hole. From a practical standpoint, this force is negligible so far as moving oil from a sand into the bore of a well is concerned.

(*b*) The Force of Water-Drive.—Water contained in the same stratum or zone which is adjacent to an oil or gas deposit is called "edge water," and the force that this water imparts to the oil or gas deposit is called "water-drive." This force varies in some fields from only a few pounds to more than 4,000 pounds per square inch in others. Where the volumetric withdrawals from a reservoir are greater than the encroachment of the edge water, the pressure of the reservoir decreases proportionately. Unless the edge-water pressure or water-drive is substantially controlled by *uniform withdrawals* from a common reservoir, *water-channeling* and *water-coning* will result in the trapping of oil and gas deposits which may never be recovered, thereby causing *underground waste*.

(*c*) The Force of Expanding Gas.—Either in solution or in contact with oil, the energy content of gas as measured by the gas pressure is one of the principal causes of oil movement through sand. The vital and fundamental part which gas energy plays in its propulsive function in driving oil within the reservoir toward the well bore and thus enabling it to be recovered, saved and produced, is so well established that it is no longer questionable from an engineering standpoint. In the absence of an active water-drive, when the gas pressure in a sand has decreased to approximately atmospheric pressure, it results in there being little differential pressure between the sand and the well bore and production ceases, even though from 50 to 75 per cent of the oil contents may remain in the reservoir, never to be recovered by ordinary methods. Hence, where gas is permitted to escape without doing useful work, *underground waste* will result. An *efficient gas-oil ratio will tend* to conserve this source of energy for bringing the oil to the bore of a well, where it may be recovered, in greater amounts.

It is evident that the most vital and important phase then is the efficient utilization of reservoir energy. The law specifically states in Section 11 the duty of the regulatory body and the scope of its authority.

"The commission shall have the authority and it shall be its duty to make such inquiries as it may think proper to determine whether or not waste over which it has jurisdiction exists or is imminent. In the exercise of such power the commission shall have the authority to collect data; to make investigations and inspections; to examine properties, leases, papers, books and records; to examine, check, test and gauge oil and gas wells, tanks, refineries and means of transportation; to hold hearings; and to provide for the keeping of records and the making of reports; and to take such action as may be reasonably necessary to enforce this act."

"Section 14. A. Whether or not the total production from a pool be limited or prorated, no rule, regulation or order of the commission shall be such in terms or effect (1) that it shall be necessary at any time for the producer from, or the owner of, a tract of land in the pool, in order that he may obtain such tract's just and equitable share of the production of such pool, as such share is set forth in this section, to drill and operate any well or wells on such tract in addition to such well or wells as can without waste produce such share, or (2) as to occasion net drainage from a tract unless there be drilled and operated upon such tract a well or wells in addition to such well or wells thereon as can without waste produce such tract's just and equitable share, as set forth in this section, of the production of such pool.

"B. For the prevention of waste and to avoid the augmenting and accumulation of risks arising from the drilling of an excessive number of wells, the commission shall, after a hearing, establish a drilling unit or units for each pool, except in those pools which, prior to the effective date of this act, have been developed to an extent and where conditions are such that it would be impracticable or unreasonable to use a drilling unit at the present stage of development. A drilling unit, as contemplated herein, means the maximum area which may be efficiently and economically drained by one well, and such unit shall constitute a developed unit as long as a well is located thereon which is capable of producing oil or gas in paying quantities. . . .

"D. Subject to the reasonable requirements for prevention of waste, a producer's just and equitable share of the oil and gas in the pool (also sometimes referred to as a tract's just and equitable share) is that part of the authorized production for the pool (whether it be the total which could be produced without any restriction on the amount of production, or whether it be an amount less than that which the pool could produce if no restriction on amount were imposed) which is substantially in the proportion that the quantity of recoverable oil and gas in the developed area of his tract in the pool bears to the recoverable oil and gas in the total developed area of the pool, in so far as those amounts can be practically ascertained; and to that end, the rules, regulations, permits and orders of the commission shall be such as will prevent or minimize reasonably avoidable net drainage from each developed unit (that is, drainage which is not equalized by counter-drainage), and will give to each producer the opportunity to use his just and equitable share of the reservoir energy.

"Section 15. A. When two or more separately owned tracts of land are embraced within an established drilling unit, the owners thereof may validly agree to integrate their interests and to develop their lands as a drilling unit. Where, however, such owners have not agreed to integrate their interests, the commission shall, for the prevention of waste or to avoid the drilling of unnecessary wells, require such owners to do so and to develop their lands as a drilling unit. All orders requiring such integration shall be made after notice and hearing, and shall be upon terms and conditions that are just and reasonable, and will afford to the owner of each tract the opportunity to recover or receive his just and equitable share of the oil and gas in the pool without unnecessary expense, and will prevent or minimize reasonably avoidable drainage from each developed unit which is not equalized by counter-drainage.

"B. Should the owners of separate tracts embraced within a drilling unit fail to agree upon the integration of the tracts and the drilling of a well on the unit, and should it be established that the commission is without authority to require integration as provided by Subdivision A of this section, then, subject to all other applicable provisions of this act, the owner of each tract embraced within the drilling unit may drill on his tract but the allowable production from such tract shall be such proportion of the allowable for the full drilling unit as the area of such separately owned tract bears to the full drilling unit. . . .

"Section 16. A. Whenever the commission limits the total amount of oil or gas which may be produced in this state, the limit so fixed shall not be less than the aggregate of the allowables fixed for each separate pool in this state for the prevention of waste in accordance with the foregoing definition of waste, plus the production from unrestricted pools, and it shall allocate or distribute the allowable so fixed among the separate pools. Such allocation or distribution among the pools of the state shall be made on a reasonable basis, giving to each pool with small wells of settled production, an allowable production which will not accelerate or encourage a general premature abandonment of the wells in the pool.

"B. Whenever the commission limits the total amount of oil or gas which may be produced in any pool in this state to an amount less than that amount which the pool could produce if no restriction were imposed (which limitation may be imposed either incidentally to, or without, a limitation of the total amount of oil or gas which may be produced in the state), the commission shall prorate or distribute the allowable production among the producers in the pool on a reasonable basis so as to prevent or minimize reasonably avoidable drainage from each developed unit which is not equalized by counter-drainage, and so that each producer will have the opportunity to produce or recover his just and equitable share, as above set forth, subject to the reasonable requirements for the prevention of waste."

TABLE 2—NEW FIELDS IN SOUTH ARKANSAS

Field—	County, and production formation—	No. wells	January 1, 1939 Produced	January 1, 1939 Reserves[1]
Schuler (Morgan)	Union, Cotton Valley	11	1,350,000	4,000,000
Schuler (Jones)	Union, Cotton Valley	130	5,500,000	[2]70,000,000
Schuler (Reynolds)	Union, Smackover	12	485,000	5,000,000
Rodessa	Miller, Lower Glen Rose	115	3,450,000	7,000,000
Buckner	Columbia, Smackover	11	346,000	4,000,000
Magnolia	Columbia, Smackover	10	125,000	10,000,000
Village	Columbia, Smackover	4	67,000	5,000,000
Atlanta	Columbia, Smackover	1	2,000	2,000,000
Total		294	11,325,000	107,000,000
Total old fields			436,194,000	110,975,000

[1]Fields under development. [2]Under proposed pressure maintenance plan.

Concepts Developed

As the controlled production movement has gained momentum, certain concepts have developed. Arkansas has had small development in production and reserves during this time. With the discovery of new reserves, the state was in a position to evaluate the institution with a freshness of viewpoint unhampered by the bias of precedent. The past 18 weeks Arkansas has put into practice, by voluntary agreement, a control program that others have talked about.

Uniformity of withdrawal among wells has been practiced elsewhere for many years. This form of ratable take or proration is familiar to all. It does not, however, assure equity. Equity can only be approached when the withdrawal from a tract bears the same relation to the total withdrawal from the pool that the reserve of the tract bears to the total reserve of the pool. Section 16 (B) says that.

That the industry has practically drilled itself into bankruptcy is common knowledge. There is no question but that the drilling of unnecessary wells brings economic distress to the oil operator. Many are convinced that the original fee owner of oil or gas in place receives the same compensation regardless of the number of wells drilled beyond one. Many believe he receives more from the one well (spaced reasonably) than any number beyond one. Be that as it may, and disregarding the accumulation of risks arising from the drilling of an excessive number of wells, it is a fact that the control of bottom-hole pressure is facilitated by uniform and relatively wide spacing of wells.

The statute requires (1) uniformity of withdrawal, (2) uniformity of well spacing, (3) equitable distribution of oil and gas in place, (4) efficient extraction of reserves. By merely putting into practice the engineering knowledge we have and determining the optimum rate of flow for each pool to the end that the natural reservoir energy be utilized from a standpoint of ultimate benefit (not necessarily immediate), there should not be too difficult a task ahead.

INTERNATIONAL

Richberg-Cardenas Parley to Consider Settlement Plan

First discussion of the Mexican petroleum situation between Donald R. Richberg, envoy of the expropriated oil companies, and President Cardenas were to have been held in Mexico City March 7. Mr. Richberg is armed with details for a settlement whereby both the Government and companies would benefit.

These details, placed before President Cardenas, have been closely guarded, but the plan is understood to provide for a long term lease or management contract with the companies. Mr. Richberg is prepared to show that under company management production and sale of oil would be so increased the Government share would be greater than the entire production under national administration. In recent weeks the markets for exported Mexican petroleum have been diminished and there is no secret about the partial collapse of the barter potentialities with Germany, Italy and Japan.

Success or failure of the proposed settlement hinges on Mr. Richberg's ability to convince President Cardenas Mexico would be better off with the companies managing production and sale and the Government sharing the cash profits of increased output and President Cardenas' deep dislike of the oil companies may be overcome. The settlement plan has the additional appeal of permitting the president's declaration against return of the oil properties to stand.

The companies, it is reported, are prepared to abandon their demand that subsoil as well as surface properties be returned to them. Failing to obtain vigorous support of the United States Government, the oil companies have been compelled to modify their original stand to some extent.

Plans have been under way for weeks in Mexico for celebration of the first anniversary of the oil seizure on March 18.

Trinidad Output Declined Slightly During January

Crude oil production in Trinidad, British West Indies, declined slightly in January, totaling 1,652,412 bbls., compared to 1,664,322 bbls. in December. However, the January, 1939, production is materially higher than for the same month in 1938 when output totaled 1,378,021 bbls. The daily average output in January, 1939, of 53,304 bbls. is nearly 20 per cent greater than at the same time in the preceding year.

El Mene, Media And Hombre Pintado, Venezuela

The El Mene and Media fields in Venezuela are owned and operated by the British Controlled Oilfields, Ltd., the Hombre Pintado field is owned by the Central Area Exploration of Venezuela, Ltd., but is operated by the British Controlled Oilfields, Ltd. (B. C. O.). The company maintains its general office in Maracaibo, with operating offices in the fields. The El Mene field is reached by narrow-gauge railway from Estacada, which is the terminal of the pipe line which connects with the production in the fields. The Media field is seven miles north and east of the El Mene, and Hombre Pintado field is 10 miles north of the El Mene field.

Development

The El Mene field was discovered in 1920 and the proven area is about 2½ miles long by one mile wide. Production is from the upper Miocene lying unconformably above folded Eocene formations. There are 90 wells of which 40 are on the pump and 50 are on gas or air lift. Some attempt has been made to repressure the producing formation but it has been discontinued. The oil is of 33° A.P.I. gravity and the production is about 1,160 bbls. per day. The wells are about 1,000 feet deep. The initial pressure was about 400 pounds per square inch. The wells are drilled with rotary outfits. The casing program consists of a 6⅝-inch flow string with 4½-inch liner set opposite the sand.

The Media field covers an area about 1 mile long by a quarter mile wide and contains six oil wells and two gas wells. The oil is produced from Oligocene-Miocene formation with the oil accumulation against the fault plane. Wells are about 3,000 feet deep and about 160 bbls. of oil is produced daily. Three of the wells flow natural with Hughes plunger lift and the other three use gas with the Hughes plunger lift to recover the oil. The oil has a gravity of 35° A.P.I. Initial pressure was about 1,200 pounds per square inch. Wells are completed with 6⅝-inch casing, water shutoff combination.

The Hombre Pintado field has seven oil and two gas wells and the area has not been defined. Production comes from Oligocene-Miocene formation which has been faulted down between Eocene strata in the form of a trough stratum. Wells vary in depth from 200 to 3,000 feet. The casing program consists of setting a string of 8⅝-inch casing or a string of 6⅝-inch casing cemented on bottom and gun perforated. All wells have been drilled with steam powered rotary outfits using rock bits. On an average two wells are drilling at all times. Admixtures are used with regular mud. Gun perforating and electrical logging is in general use.

Production

The three fields are served by a common pipe line to Estacada loading terminal on Lake Maracaibo about 35 miles distant from El Mene. This is a 6-inch diameter line and is supplemented by a 4-inch line. The oil from the Media field is delivered to the El Mene field through a 6- and 3-inch pipe line about 4 miles long. The oil from Hombre Pintado field is also delivered to El Mene through about 14 miles of 4- and 3-inch pipe line.

The wells in El Mene are pumped with central powers and a few single units and gas engines are used for power. Wells are serviced by portable winches and gin poles are used. The oil has to be treated before being run to pipe line.

In the Media field the wells are all produced with the Hughes plunger lift. The wells are serviced with portable winches and the 84-foot standard drilling derricks are left standing for pumping service. This oil does not need treatment.

Hombre Pintado field has six wells equipped with pumping units powered with gas engines. The wells are serviced with portable winches and drilling derricks are left standing over the deeper wells while gin poles are used to service the shallow ones. The oil does not have to be treated.

Curacao-Aruba Exports Reported Showing Decline

Petroleum exports from the Dutch West Indies declined 2,495,774 bbls. in November, 1938, compared to the preceding month totaling 13,243,910 bbls., the lowest in four months. The heaviest decline was suffered by Curacao, where Shell operating subsidiary has its large refinery used principally for processing Venezuelan crude oil. There was a milder decline in shipments from Aruba where Lago Oil & Transport Co., Standard of New Jersey subsidiary, has its large refinery. Shipments by products and by islands are shown below:

DUTCH WEST INDIES EXPORTS
(In barrels of 42 gallons)

Products—	July	August	September	October	November
Curacao					
Kerosene	105,995	41,643	121,861	109,165	92,376
Fuel oil	3,992,367	4,191,854	4,125,022	5,903,739	4,178,614
Gasoline	1,229,606	858,677	1,087,161	1,208,899	1,128,169
Gas oil	436,649	138,849	382,104	719,888	619,311
Diesel oil	295,931	406,854	289,058	238,547	391,076
Lube oil	71,008	128,777	744,600	189,600	105,250
Crude oil	729,344	877,835	622,797	518,112	436,205
Total	6,860,900	6,644,489	7,372,603	8,687,950	6,951,001
Aruba					
Kerosene	410,161	389,446	329,327	471,025	334,814
Fuel oil	3,445,482	4,571,888	3,505,295	4,375,886	3,591,452
Gasoline	1,476,477	1,474,208	1,158,156	1,127,715	1,112,713
Gas oil	469,937	255,221	567,935	213,958	500,087
Diesel oil	388,236	554,442	565,796	778,821	682,401
Crude oil	48,864	49,157	73,486	.....	71,414
Lube oil	.....	.....	....	84,329	28
Total	6,239,157	7,294,362	6,199,995	7,051,734	6,292,909

Colombian Output Of Tropical Less; Peru Unchanged

Colombian crude oil production totaled 1,688,264 bbls. from properties of Tropical Oil Co., operating subsidiary of International Petroleum Co., Ltd., in January. Production the first month this year was 192,470 bbls. lower than registered in December, 1938, and 60,308 bbls. lower than for January of last year. In Peru, International produced 1,039,421 bbls. in January, only slightly changed from December and January, 1938.

Pipe Line Activity

Ashland Buys Gathering Lines Of Illinois P. L. in Kentucky

ASHLAND, Ky., Mar. 7.—The Ashland Oil & Refining Co., the largest purchaser of oil in the eastern Kentucky fields, has extended its operations into western Kentucky by the purchase of the Illinois Pipe Line Co. gathering system in the Owensboro area. The company has been buying oil in the western part of the state for some time, but in the past week completed a deal which gives it ownership of 300 miles of gathering lines connected to about 2,000 stripper wells producing in the neighborhood of 3,000 bbls. of oil daily. Previously, and for about a year, the Ashland company had been purchasing about one-third of the oil handled by the Illinois lines in the Owensboro area, barging the oil to its refinery in Ashland about 300 or more miles up the Ohio River from Owensboro. Other western Kentucky customers of the Illinois company switched recently to Illinois crude, which made it necessary for the Illinois company to prorate its runs 50 per cent in the western stripper areas, while a competing line was not prorating adjoining leases.

The Illinois company sold its gathering system to the Ashland company so that its old customers could find a larger market for their oil. Paul G. Blazer, president of the Ashland Oil & Refining Co., says the company is now taking 75 per cent of the capacity of the wells in western Kentucky to which it is connected and expects to lift proration entirely as soon as additional barge capacity is available.

Minnesota Line Hearings Are Set for March 27

WASHINGTON, D. C., Mar. 6.—The Federal Power Commission has just made a series of important policy decisions in the long-pending controversy over the construction of new natural gas pipe lines into the northern Minnesota area. It ruled it does have jurisdiction over such construction even though the proposals are to construct lines to communities not now served with natural gas, and in so doing denied the petition of Kansas Pipe Line & Gas Co. for a ruling disclaiming jurisdiction.

This means that the commission is taking a broad view of its powers to define natural gas market areas although it stated it does not have unlimited jurisdiction over new gas pipe line construction and that a commission certificate is required only when a natural gas company undertakes the construction of pipe lines to a market in which natural gas is already being served by another company.

The commission scheduled hearings for March 27 on the applications of three companies to build into the same general territory, namely applications of Kansas Pipe Line & Gas Co. to build a line from the Hugoton gas field in Kansas through Kansas, Nebraska, South Dakota, and North Dakota into Minnesota; the application of Public Service Gas Co. of Montana to construct a line from Montana and Wyoming through North Dakota and into South Dakota, Minnesota and Wisconsin; and the application of North Dakota Consumers' Gas Co. to construct lines from Mandan to Fargo, N. D., from Fargo to Grand Forks, N. D., and from a point near Grand Forks to Crookston, Minn. All interested may submit evidence.

Probably the most important ruling made by the commission was its denial of petitions of bituminous coal interests to intervene in opposition to extension of natural gas lines. These interests, including the National Bituminous Coal Commission, National Coal Association, United Mine Workers of America and a number of coal retailers and retail associations, contended the natural gas act should be interpreted as giving the Federal Power Commission authority to prevent the construction of new natural gas pipe lines where this would result in competition in markets now served exclusively by bituminous coal or other competitive fuels.

While the commission refused to permit these coal interests to become formal parties in the case it did authorize them to be represented at the hearing and to introduce relevant and material evidence. Commissioner Claude L. Draper dissented, saying that while the coal interests may not be competitors within the meaning of the natural gas act, it would be in the public interest to permit them to intervene. The coal interests will thus have a rather anomalous standing at the hearing, but the commission has definitely ruled it does not have the power to regulate competition between various types of fuels and that its power under the act relates only to the regulation of competition between natural gas companies.

A fourth company interested in the northern Minnesota market, Montana-Dakota Utilities Co., was granted leave to intervene in the applications of the other three companies, but in granting this leave the commission stipulated it was not to be construed as a recognition that this company has prior rights to the distribution of natural gas to this area which it has claimed as its natural territory but which it has not served with new pipe lines.

British May Build Line From Alberta Fields

CHATHAM, Ontario.—Definite steps toward the construction of a crude oil pipe line from Calgary to the head of the lakes were discussed at a conference held at Ottawa recently between N. E. Tanner, minister of lands and mines for Alberta, and T. A. Crerar, minister of mines; C. D. Howe, minister of transport, and Norman Rogers, minister of labor, in the federal government. It is stated that British interests have been studying the project and are prepared to construct and operate the line without financial guarantees from either the provincial or federal governments; but assurances in regard to available crude production, markets, right of way, rates, and taxation are required.

The initial step, to be taken this year, would be construction of the first stage of the line from Calgary to Winnipeg, which would handle 14,000 bbls. a day at about 50 cents a barrel. This rate, less than half the prevailing crude freight rates, would secure the eastern prairie markets for Alberta crude. Later, as production was further developed, the line would be extended to Fort Williams, upwards of 17,000 bbls. daily being necessary for profitable operation.

A delegation representing the federal and Alberta governments and the oil industry in Alberta will likely be sent to London, England, to discuss details of the project with the British admiralty and the financial interests concerned.

John C. Day Appointed W.P.R.A. Secretary-Treasurer

Appointment of John C. Day as temporary secretary-treasurer of the Western Petroleum Refiners Association, was announced at a meeting of the executive committee by President C. M. Boggs. He succeeds A. V. Bourque, resigned.

Mr. Day was for a number of years with Barnsdall Refining Co. He joined the association in 1935 as economist and statistician, and also had charge of the technical meetings and matters of interest to the manufacturing side. Mr. Bourque, whose resignation was accepted at this meeting, effective February 28, is president of the newly-formed Petroleum Sales Co.

JOHN C. DAY

Southern Louisiana Line From the Lirette Field

United Gas Pipe Line Co. has completed survey and is buying right of way for a South Louisiana gas line from the Lirette field of Terrebonne Parish to St. Rose, Jefferson Parish, where it will connect into another of the company's systems. The line will be about 50 miles long and 12-inch.

Line From Birk City Field Laid to Ohio River

OWENSBORO, Ky.—W. R. Abbot of Aetna Service Co. of Louisville completed a 4-inch pipe line from the Birk City field to the Ohio River. He has two 29,000-bbl. barges and will install a floating dock 142 by 25 feet about a mile south of the Wilson ferry at Grissom's landing.

Natural Gas

California Standard Exempted From Holding Company Law

WASHINGTON, D. C.—The Securities Commission has exempted Standard Oil Co. of California from the public utility holding company law, holding that being primarily an oil company, its ownership of Pacific Public Service Co. was not sufficient to warrant regulation.

New Low Pressure System For Turner Valley

TURNER VALLEY, Alberta.—Recommendations of the Alberta Utilities Commission are expected to result in the installation of a new low-pressure natural gas system to serve the oil-field community of Turner Valley. Originally gas was obtained from McLeod Oil Co. wells, and when these were sold to Royalite Oil Co., the latter continued to furnish gas which was distributed under the original management. New regulations of the Public Utilities Commission set a maximum pressure on the main of 40 pounds, stepped down to ounces for residence use, and also require scrubbed gas, while it is likely meters will be installed. Heretofore a monthly flat rate has been in force.

New Pool in Prospect in Galveston County, Texas

HOUSTON, Tex., Mar. 7.—Prospects of another pool in Galveston County are in sight. Sun Oil Co. No. 2 Cade, a wildcat on the Caplen prospect, Bolivar Peninsula, is running tubing for completion following a drillstem test at 7,474-78 feet which recovered 17 stands of oil and three stands of mud and salt water. The pressure built up to 1,230 pounds.

Refinery Expansion

E. E. Ebner, Quaker State Oil Refining Corp., and Dr. Gustav Egloff, Universal Oil Products Co., at National Petroleum Association dinner in Oil City March 1

OIL CITY, Pa., Mar. 2.—Dr. Gustav Egloff, director of research, Universal Oil Products Co., Chicago, told 150 Pennsylvania refinery technologists that Pennsylvania kerosene and fuel oil are "preferential stocks for catalytic cracking due to their high paraffinicity" at a meeting here last night. Refineries in the Cleveland, Pittsburgh and Philadelphia area were represented. The night before Dr. Egloff addressed a similar group at Bradford.

The speaker discussed the process and its significance. In the subsequent discussion he questioned the advisability of replacing a thermal unit with a catalytic unit and regarded with more favor the suggestion that a convertible thermal and catalytic unit be employed. He also mentioned the possibilities in alkylation, isomerization, dehydrogenation and other processes which are "just around the corner." E. E. Ebner, refinery superintendent, Quaker State Oil Refining Corp., presided. Remarks were made by Mrs. M. C. Mallon and Joseph E. Keller of the National Petroleum Association under whose auspices the meeting was conducted.

A. J. Slagter Plans to Build New Refinery

A. J. Slagter, at one time head of the old Transcontinental Oil Co. refining department, here and at Fort Worth, is reported as announcing he will build a new 1,000-bbl. skimming refinery east of Henderson on the L. & N. tracks and state Highway 54, in Northwest Kentucky.

He proposes to erect about 20,000 bbls. of crude storage and hopes to have his plant operating by May 15.

W.P.R.A. Meeting Plans Are Perfected

Mid-Continent refiners will meet at the Plaza Hotel in San Antonio, Tex., March 19 to 22 for the twenty-seventh meeting of the Western Petroleum Refiners Association.

The technical phase of the program has been arranged by L. D. Mann, chairman of the manufacturing committee, and will include several of the recently developed refining and treating processes. Alloy steels are being used more in the refineries and much has been accomplished in the research of the materials in the last several years so as to keep abreast with the refining developments. A paper on this subject will be presented by the Timken Roller Bearing Co. Other subjects will be on catalytic refining, reforming and polymerization, and treating of polymerized gasoline.

Natural Gasoline

California Natural Gasoline Plant Operations

California natural gasoline production in January was 54,029,095 gallons. Stocks at end of month were 2,319,622 compared to 2,524,007 at beginning of month.

PLANT OPERATIONS

Field—	Natural gasoline produced (gallons)	Plants operating
San Joaquin Valley:		
Belridge	2,102,398	3
Elk Hills	111,385	2
Kettleman Hills	16,253,154	8
Midway-Sunset	1,884,349	9
Mountain View	320,161	2
Miscellaneous	472,051	6
Coastal district:		
Elwood	599,516	3
Rincon	211,234	2
Santa Maria	364,079	3
Ventura Avenue	5,139,379	5
Miscellaneous	415,562	5
Los Angeles Basin:		
Brea-Olinda-Coyote	1,173,403	5
Dominguez	2,790,588	2
El Segundo	212,357	2
Huntington Beach	3,143,084	5
Inglewood	358,883	2
Long Beach	7,286,795	10
Montebello	802,044	2
Richfield	665,871	2
Rosecrans	881,572	2
Santa Fe Springs	5,078,214	6
Seal Beach	511,318	1
Torrance	1,064,774	3
Miscellaneous	2,186,924	5
Total (all fields)	54,029,095	95

Distribution

	(gallons)	(gallons)
Stocks, beginning of month	2,524,007	
Production during month	54,029,095	
Delivered to refineries		53,646,531
Delivered to jobbers, brokers, or blenders		555,369
Blended at plants for production of motor fuel		7,894
Losses		23,686
Stocks end of month		2,319,622
Total	56,553,102	56,553,102

DISTRIBUTION OF LIQUEFIED PETROLEUM GASES

(Thousands of gallons)

Number of producing companies, 12		
Stocks beginning of month	1,511	
Production during month:		
At natural gasoline plants	2,678	
At refineries from natural gas	613	
At refineries from cracked gas	1,027	
Total	4,318	
Total demand		4,068
Losses		27
Stocks end of month		1,734
Total	5,829	5,829

Liquefied petroleum gas production	2,678,124 gals. = 63,765 bbls.
Motor fuel produced	9,184 gals. = 219 bbls.

Continental Enlarging Repressuring Facilities in K.M.A. Field

FORT WORTH, Tex.—Continental Oil Co. is expected to get under way soon on its enlargement of repressuring facilities in the K.M.A. field of North Texas. Three new 400-hp. compressors are to be installed, one at the main plant and one at each of the auxiliaries, to give them a daily capacity of about 4,500,000 cu. ft. of 1,600-pound gas. High-pressure lines are to be laid from the No. 1 auxiliary and the high-pressure lines from the other two plants extended. It is expected that the enlargement work will be completed soon after April 1.

Shanley Oil & Gas Starts Natural Gasoline Plant

Shanley Oil & Gas yesterday started foundations for a natural gasoline absorption plant in the D. & B. area near Harbor City, Calif. Located on a portion of D. & B. Oil's lease at Broadwell and Lomita, the new plant, which should be in operation in about 30 days, will process the gas from 40 wells in the new field. It is reported that the plant will have a capacity of 6,000 gallons per day.

The new firm is headed by J. R. Shanley, veteran Long Beach natural gasoline operator, J. L. Dunn and O. F. Collinge.

East Texas Properties Figure in Deals

FORT WORTH, Tex.—General American Oil Co. is reported to have sold to William Kistler, Jr., Tulsa, an interest in 28 producers on the J. E. Adams lease, Gregg County, for a reported $630,000, $330,000 in cash, balance in oil. General American was also reported to have sold to E. B. Germany 9½ wells on the Harris lease, and one well each on the Magrill and Mattox leases.

R. G. Trippett, Shreveport, transferred to Shell Petroleum Corp. 27⅝ wells in Gregg County for approximately $900,000.

At the recent meeting of the South Louisiana Geological Society, Dr. John D. Todd, of Roper and Todd, Houston, Tex., gave a talk on "The Sparta-Wilcox Trend," and Dr. Ralph E. Taylor, of Freeport Sulphur Co., talked on "The Origin of the Cap Rock of Louisiana Salt Domes."

Programs and Meetings

A.P.I. Southwestern District Preliminary Program

The preliminary program for the spring meeting of the Southwestern District, Division of Production, American Petroleum Institute, to be held at the Plaza Hotel, San Antonio, Tex., March 16-17, follows:

Thursday, March 16

8:00 a.m. Breakfast meeting for officers of Southwestern District, presiding officers, and authors.

8:30 a.m. Registration.

9:30 a.m. Morning session.—Presiding: E. P. Hubbard, Gulf Oil Corp., Houston.

Address of Welcome.

Response.—W. S. Morris (chairman of the Southwestern District).

Announcements.—Al A. Buchanan (chairman of San Antonio Arrangements Committee).

"Petroleum Engineering Education and Its Relation to the Petroleum Industry," Harold Vance, A. & M. College of Texas.

"Appraisal of Oil Properties," T. A. Hall, First National Bank in Dallas, Dallas.

2:00 p.m. General session.—Presiding: W. S. Morris, East Texas Engineering Association, Kilgore, Tex.

Address.—W. R. Boyd, Jr., executive vice president, American Petroleum Institute.

"The Economic Effect of Proration on Well Spacing," W. B. Pyron, vice president, Gulf Oil Corp., Houston.

"The Gasoline Tax Situation in Texas," Datus E. Proper, executive vice president, Texas Good Roads Association.

Friday, March 17

9:30 a.m. Morning session.—Presiding: L. A. Ogden, Pure Oil Co., Fort Worth.

"Developments in Discovery and Production Practices in Southwest Texas," C. H. Row, Sun Oil Co., San Antonio, and R. H. McLemore, Sun Oil Co., Dallas.

"Trends and Developments of A.P.I. Pipe Standards," C. A. Dunlop, Humble Oil & Refining Co., Houston.

"Well Completion Data," S. F. Bowlby, Shell Petroleum Corp., Houston.

Election of district officers and committees. Report of nominating committee (A. G. Levy, chairman).

2:00 p.m. Afternoon session.—Presiding: P. D. Torrey, Sloan & Zook Co., Houston.

"Condensate Wells—Completion and Recycling Operations," E. V. Foran, Parker, Foran, Knode & Boatwright, Austin, Tex.

"Recovery of Condensate from Distillate Wells," Emby Kaye, Tide Water Associated Oil Co. and Seaboard Oil Co. of Delaware, Tulsa.

"Laboratory Technique and Equipment for the Study of Condensate," W. F. Fulton, Union Producing Co., Houston.

California Chairman at Oil-World Exposition

S. T. CHILDRESS

Rio Bravo Oil Co., chairman of committee in charge of California dinner at Oil-World Exposition, Houston, Tex., Friday, April 28.

Export Managers Club Planning Its Annual Get-Together

The Export Managers Club of New York is completing plans for its annual get-together, to be held March 14 in the Hotel Pennsylvania, that city. A feature will be a debate on "Can we hold and expand our export trade?" The audience will determine the winner. E. P. Engelke, Cities Service Oil Co., is a member of the committee on arrangements.

Natural Gas Accountants Hear Papers in Tulsa

At the recent meeting of the Natural Gas Accountants Association held in Tulsa there were present 55 representatives of the gas companies throughout the state, the largest attendance of record. Papers were presented on: Fixed Property Records, by O. E. McMannis, Consolidated Gas Utilities Corp.; Fixed Capital Records, Their Uses and Advantages, by F. V. Fitzwater, Oklahoma Natural Gas Co.; and Units of Property Records, by W. Smith, Central States Power & Light Corp.

The next meeting is to be held in Oklahoma City, April 28.

Midwest Power Conference To Be Held in Chicago

The second annual Midwest Power Conference, sponsored by Armour Institute of Technology in cooperation with Iowa State College, Michigan State College, Purdue University, State University of Iowa, University of Illinois, University of Michigan, University of Wisconsin, will be held in the Palmer House, Chicago, April 5 to 7.

Oil Burner Institute in New York April 18

The fifteenth annual meeting of the Oil Burner Institute will be held in New York April 18, it was announced by Earl Marr, chairman of the program committee. New directors will be chosen at the afternoon meeting following a board session in the morning. Luncheon and dinner will be offered as a part of the program.

CALENDAR

March

WELDING CONFERENCE AND SHORT COURSE, University of Oklahoma, Norman, Okla., Mar. 9-10.

INTERSTATE OIL COMPACT COMMISSION, Austin, Tex., March 15.

AMERICAN PETROLEUM INSTITUTE, spring meeting of Southwestern District Division of Production, Plaza Hotel, San Antonio, Tex., Mar. 16-17.

AMERICAN CHEMICAL SOCIETY OKLAHOMA SECTION, petroleum group, at Tulsa, March 18.

WESTERN PETROLEUM REFINERS ASSOCIATION, annual meeting, San Antonio, Tex., Plaza Hotel, Mar. 20-22.

SOCIETY OF EXPLORATION GEOPHYSICISTS, annual meeting (joint meeting with A.A.P.G. March 22), Oklahoma City, Huckins Hotel, March 21-23.

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, 24th annual meeting, Skirvin Hotel, Oklahoma City, Okla., Mar. 22-24.

April

AMERICAN CHEMICAL SOCIETY, Baltimore, Md., April 3-7.

AMERICAN PETROLEUM INSTITUTE, spring meeting of eastern district, Division of Production, William Penn Hotel, Pittsburgh, Pa., April 4-5.

AMERICAN PETROLEUM INSTITUTE, spring meeting of Pacific Coast district, Division of Production, Biltmore Hotel, Los Angeles, Calif., April 11.

NATIONAL PETROLEUM ASSOCIATION, semi-annual meeting, Hotel Cleveland, Cleveland, Ohio, April 13-14.

OIL BURNER INSTITUTE, fifteenth annual meeting, New York, April 18.

AMERICAN PETROLEUM INSTITUTE, Division of Production, Mid-Continent district, Skirvin Hotel, Oklahoma City, Okla., April 18-19.

OIL-WORLD EXPOSITION, Houston, Tex., April 24-29.

May

PETROLEUM ELECTRICAL SUPPLY ASSOCIATION AND PETROLEUM INDUSTRY ELECTRICAL ASSOCIATION, Rice Hotel, Houston, Tex., May 2-4.

NATURAL GASOLINE ASSOCIATION OF AMERICA, Hotel Tulsa, Tulsa, Okla., May 3-4-5.

AMERICAN PETROLEUM INSTITUTE, ninth midyear meeting, Roosevelt Hotel, New Orleans, La., May 15-18.

NATURAL GAS SECTION, A.G.A., annual meeting, Tulsa, May 8-11.

WORLD AUTOMOTIVE ENGINEERING CONGRESS, sponsored by S.A.E. for New York (May 22-26), Indianapolis (May 20), Detroit (May 31-June 2), San Francisco (June 6-8), May 22-June 8.

NATIONAL ASSOCIATION OF PURCHASING AGENTS, annual convention (Oil Company Buyers' Group), Fairmont Hotel, San Francisco, Calif., May 21-25.

June

PENNSYLVANIA GRADE CRUDE OIL ASSOCIATION, Hotel Hershey, Hershey, Pa., June 15-16.

THIRTEENTH INTERNATIONAL CONGRESS OF CARBIDE, ACETYLENE, OXYACETYLENE WELDING AND ALLIED INDUSTRIES, Munich, Germany, June 25-July 1.

August

MICHIGAN OIL AND GAS EXPOSITION, Mount Pleasant, Mich., Aug. 1-6.

ENGINEERING and OPERATING

In This Issue

MARCH 9, 1939

RECYCLING AIDS RECOVERY IN THE KANSAS SHOE-STRING FIELD
By Harry F. Simons ..... *Page 44*

By recycling gas produced with oil immediately on completion of wells in southeastern Kansas, production can be maintained at a higher rate. In the operation more gas is injected than is taken from the wells, the extra gas being obtained from a gas well.

STRAIGHTRUN GASOLINE BEING REFINED FOR AVIATION PURPOSES
By L. J. Coulthurst ..... *Page 46*

Modern aviation gasoline is usually a blend of about 60 per cent straightrun gasoline of 70- to 76-octane value, 40 per cent isooctane and 3 cubic centimeters of tetraethyl lead. Here the author describes the method one large refiner uses to prepare the high-octane, straightrun gasoline.

ETHYLENE HYDROCARBONS SUBJECTED TO HYDRO- AND DEHYDROPOLYMERIZATION
By S. S. Nametkin, L. N. Abakumovskaya and M. G. Rudenko ..... *Page 52*

Translation of article appearing in foreign literature describing original research in reactions of ethylene and alicyclic hydrocarbons.

ALUMINUM CHLORIDE. REACTIONS ON UNSATURATED HYDROCARBONS
By S. S. Nametkin and M. G. Rudenko ..... *Page 52*

Aluminum chloride has been recognized as an important reactive medium for the conversion of saturated hydrocarbons or cracked hydrocarbons into desirable lubricating oil fractions. Here the authors report results when subjecting amylene, caprylene and cyclohexene to the action of aluminum chloride.

SAFETY — BATHTUB AT REFINERY TO QUENCH BURNING CLOTHES *Page 57*

At a strategic place in the refinery an ordinary bathtub is kept full of water as a refuge for an operator who has been caught in a fire.

ENGINE WATER IS TREATED IN ENCLOSED RECONDITIONING SYSTEM
By J. P. O'Donnell ..... *Page 59*

The method used for treating engine jacket cooling water on a producing property in Pennsylvania is described.

NEW CATALYTIC POLYMERIZATION UNIT IN JOHNSON REFINERY
By William J. Leenhouts ..... *Page 65*

The polymerization unit installed at an Oklahoma refinery for making high-octane gasoline and increasing yield is discussed by the superintendent who considers general principles and details of operation.

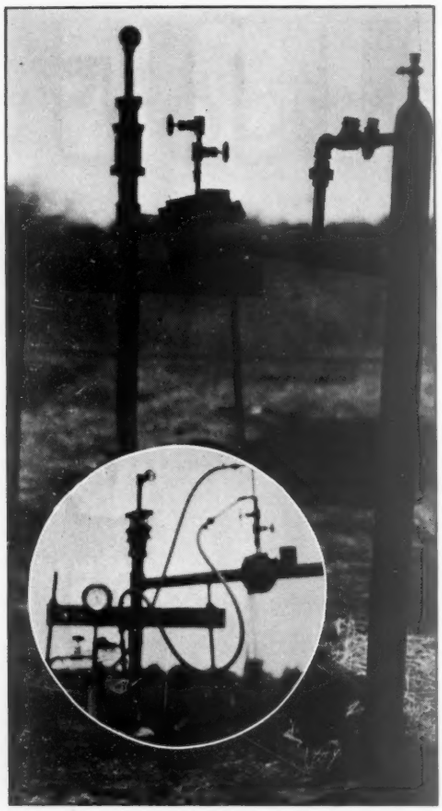
OPERATING IDEAS ..... *Page 50*

METALS PROGRESS—*By W. L. Nelson* ..... *Page 62*

PROBLEMS FROM READERS—*By L. G. E. Bignell* ..... *Page 67*

QUESTIONS ON TECHNOLOGY—*By C. K. Francis, Ph.D.* ..... *Page 68*

Recycling of Gas Recovery From



Injection well head showing small connections used for regulating gas and the orifice for metering.—(Inset) Mannometer and gauge connected up for measuring input

By HARRY F. SIMONS

Pressure maintenance started as soon as possible after well completion by the injection of gas in quantities larger than those taken from the formation is the plan being followed by the Greysolon and Dorana Oil companies on their properties in and adjoining Section 7-34-17e, about midway between Coffeyville and Liberty in Montgomery County, Kansas. Greysolon is operating the property as a large-scale laboratory for determining the type of formations and methods most suitable for repressuring, while at the same time the increase obtained in the production makes the project profitable.

The work is under the direction of D. C. Rood and Edwin W. Hayes; working together they made an extensive research into pressure-maintenance methods, selected the properties, analyzed the cores from the wells in their own laboratories, and designed and supervised the erection of the repressuring plant and system.

Production is from a sand found in the bottom of the Labette shale, of Pennsylvanian age, which lies on top of the Oswego lime; in some cases this sand is present when the Oswego has been pinched out. The bottom of the sand is around 360 feet, with the top encountered anywhere from 313 to 330 feet. It was first discovered in this vicinity more than 30 years ago in wells being drilled for gas production in the Bartlesville sand; the oil production was passed up for the gas, which was more profitable at that time. The sand is generally uniform, slightly coarser than the Prue, but not as loose as the Bartlesville.

From a study of logs of old wells drilled to the Bartlesville, and other obtainable geological information, the structure was estimated to contain about 1,100 acres. Wells in the vicinity producing from the sand had been completed for 15 to 35 bbls. daily, but they had all declined rather rapidly when produced without any effort to maintain the pressure, and most of them were producing less than 2 bbls. daily. At such a low rate of production, little profit could be realized from such an operation.

Drilled Tests

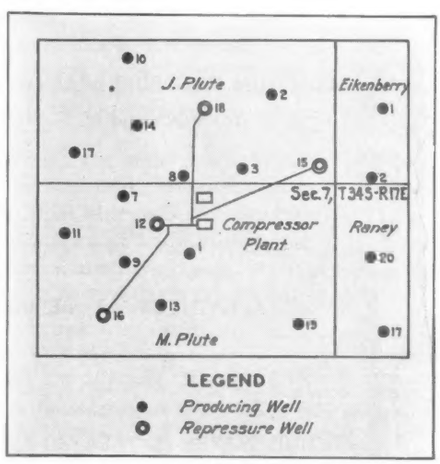
The original property purchased in March of 1937 by the Greysolon company had five wells with a total production of 7 bbls. daily. Several test wells were drilled immediately, with the major part of the hole being drilled with cable tools and cores of the producing horizon obtained through the use of a portable coring machine. The cores were analyzed by the extraction method in the company's own laboratory and showed 21 per cent porosity and a permeability of 40 millidarcys. Estimate of recovery from the information at hand was 700 bbls. per acre-foot, or 5,000 bbls. per acre. In an effort to determine the effective drainage of the wells, which had declined to slightly more than a barrel a day, a well was drilled in the center of a triangle formed by three depleted wells; the core from this well showed 54 per cent saturation, which indicated that far too much recoverable oil was being lost.

New wells drilled flowed from 20 to 30 bbls. a day naturally for a short time, but soon required pumping, and some of them declined to less than 5 bbls. daily three months after completion, and indications were that the new wells would soon be down to less than 2 bbls. daily if conditions were not corrected. Little gas is associated with the natural production, the normal gas-oil ratio being about 200 cu. ft. per bbl.; the designing and erection of a repressure system would require considerable time so the operators decided to drill a well to the Bartlesville for gas with which to repressure.

The Bartlesville well drilled on the Grund lease, north of the repressure project, provided 290 pounds pressure and a volume of gas estimated to be 200,000 cu. ft. daily with which to start injection. The pressure on the producing wells began increasing immediately, and when they approached their original gas production they were pinched back 25 per cent. It was found that from 5 to 7 bbls. could be produced daily from the wells without any danger of channeling from the repressuring. Drilling of more producing wells and pressure wells was started along with the design of a pressure-maintenance system.

Seven injections wells were drilled with spudding machines, the holes being completed without shooting. Seven-inch casing was used, with the casing protected by packing shale around the outside; the shale used was obtained during the drilling of the holes by building one pit for dumping shale cuttings and another for lime and sand cuttings. New 1,900-pound test, lap-weld 2-inch tubing was used in the input wells, and the space between the tubing and casing was also filled with packed shale. Producing wells were shot with from 20- to 50-quart shots; the casing was removed from some wells before shooting, as at such shallow depths the explosion is often forceful enough to blow the pipe from the hole. Water tamping was generally used on top of the shots, as the cleaning out after a sand-tamped shot often required as much time as drilling the hole. The spacing between the input wells and the producing wells was varied for determining the effect gained and the most practical method of injecting the gas. A hexagonal pattern was selected, with each input well surrounded by six producing wells. The average distance of the producing wells from No. 16 input well was 175 feet, 220 feet from No. 12, 260 feet from No. 18, and 300 feet from No. 15. An estimate of the efficiency of the injection wells is obtained by keeping close check of the amount of gas used and the increase in production obtained.

For recycling the gas obtained from the producing wells, a 100-hp. twin-cylinder Superior gas engine directly connected to a two-stage compressor of 450,000-cu. ft. daily capacity was used. Due to the level terrain prevailing in the vicinity, the runoff of rain water is unusually slow and the ground becomes quite soft, and the compressor was installed on a concrete foundation having a very wide base to prevent settling. A special oil-



Plat showing repressure lines and varied patterns used to determine proper spacing of producing and injection wells

filter pump was installed, which is driven from the engine pump shaft; the 2-inch pump normally used for circulating water was replaced by a 3-inch centrifugal pump driven through a belt from the auxiliary pulley on the engine flywheel.

A 250-bbl. wooden tank topped by a 12 by 14 by 14-foot tower, was built to care for cooling and storing the circulating water. The valve on the line leading to the engine was placed on the inside of the tank so the line could be drained in case the

Following Completion Aids Shoe-String Sand Field

plant was shut down during cold weather without any danger of the valve freezing. The design of the engine-cooling system was planned to meet the wide range of temperatures found throughout the year. An effective muffler was designed, which makes conversation possible while standing close to the engine exhaust.

Gas from the producing wells is taken through one-half inch control into the 2-inch gathering lines connecting into the 4-inch header, which empties into the scrubber; the scrubber is aided in its work by several traps built into the gathering system. Enough vacuum is maintained on the system to prevent any back pressure being placed on the wells; the gauge normally reads about 2 ounces. The gas is discharged from the low-pressure side at 40 pounds per square inch through a cooler into the high-pressure side, from which it is discharged at 290 pounds per square inch. Before entering the distribution lines, the gas is cooled and dried by knockout system manufactured on the job from old casing and tubing. A joint of 8¼-inch 32-pound casing was used on the bottom and a joint of 6⅝-inch 24-pound casing on the top; they are joined by nine laterals of 2-inch pipe 8 feet long. Gas enters the 8¼-inch pipe, passes upward through the laterals and leaves from the opposite end of the 6⅝-inch casing, entering the 4-inch header, from which it is taken through 2-inch lines to the injection wells. The opposite end of the 8¼-inch casing is connected to a 60-gallon drip.

This article describes a repressuring operation on which new wells are drilled in an old field and gas injection started immediately following completion. A large reserve of oil that is stored in the old shallow sand fields of Texas, Kansas and Oklahoma may be recovered by this method

Injection Pressure

The injection wells are operated at pressures varying from 200 to 290 pounds, the older wells requiring the lesser amount to move the oil. From 20,000 to 25,000 cu. ft. of gas is injected into each well daily for a total of approximately 150,000 cu. ft., or one-third the capacity of the plant. The rate of injection is controlled through a one-half inch valve, with from 25 to 30 pounds back pressure being held on the flowing wells. More gas could be injected, but it might induce channeling. Gas from the Bartlesville sand is being used to operate pumping and repressuring machinery and is also added to the injector gas. The well is declining rapidly and will have to be reconditioned or abandoned.

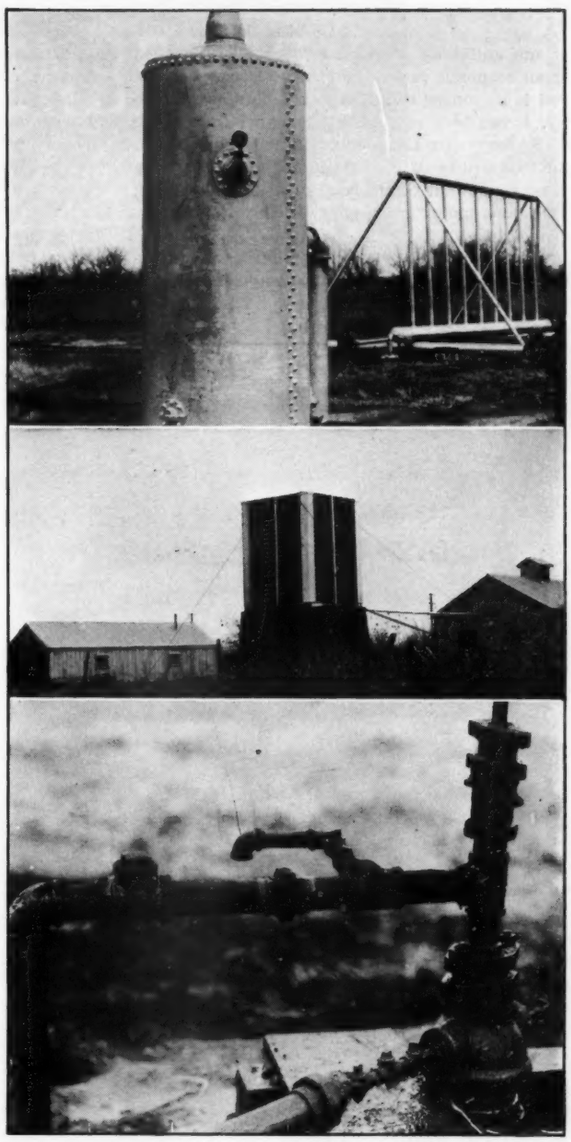
One-half inch connections are used for controlling the injection and producing wells, due to the greater ease of adjustment when flowing such small amounts and because of their economy. The gas is not by-passed through the smaller connections, as the 2-inch lines are plugged in this section. An orifice for metering the gas was installed on each injection well, and an opening for attaching a gauge was installed on each producing well. During the first months of repressuring, daily readings were taken to determine the gas movement, but after the rate became fairly uniform, weekly readings became the custom. Production was increased from 16 bbls. before repressuring to 100 bbls. daily after repressuring.

Old wells on the lease which had little gas pressure and were practically depleted were watched closely, and while the repressuring increased the production materially in the old wells, the new wells gave much better results. Greysolon has 34 wells to the east of the repressuring project which are scheduled for similar treatment, and in cases requiring it for effective movement of the oil, new wells will be drilled.

Two types of powers are used on the Greysolon properties, a low-down, single eccentric, geared power driven by a 25-hp. Superior gas engine and a push-pull power driven by a 35-hp. Olin engine.

While the cost of drilling shallow wells is not great, profitable operation of this type property depends on keeping cost to a minimum by not overequipping and by keeping operating costs as low as possible. Most of the production will be permanently lost if pressure maintenance is not started soon after completion of the wells, and this requires close supervision and considerable attention to engineering details, according to Hays and Rood.

Repressuring and other secondary recovery methods in this area were given a setback late last year by proration and the threatened abandonment of the pipe-line gathering system serving the properties. Late in January, 1939, the pipe-line company announced they would continue gathering the oil, and plans of independents for acquiring the gathering system were dropped. Elimination of the market difficulties will be an incentive to introduce more repressuring systems in shallow sand fields.



(Upper) Scrubber for produced gas in foreground and knock-out trap for repressure gas in background. Scrubber operates at a vacuum to keep pressure from gathering system.—(Center) General view of power shed, cooling tower and compressor building. The latter two were designed and erected by the Greysolen management.—(Lower) Producing well head showing small connections used. Plug in half inch tee can be removed for installation of gauge to obtain well potential. Small connections aid in controlling wells when only light amount of gas is being produced

Straightrun Gasoline Made for Aviation Purposes

By L. J. COULTHURST
Foster Wheeler Corp.

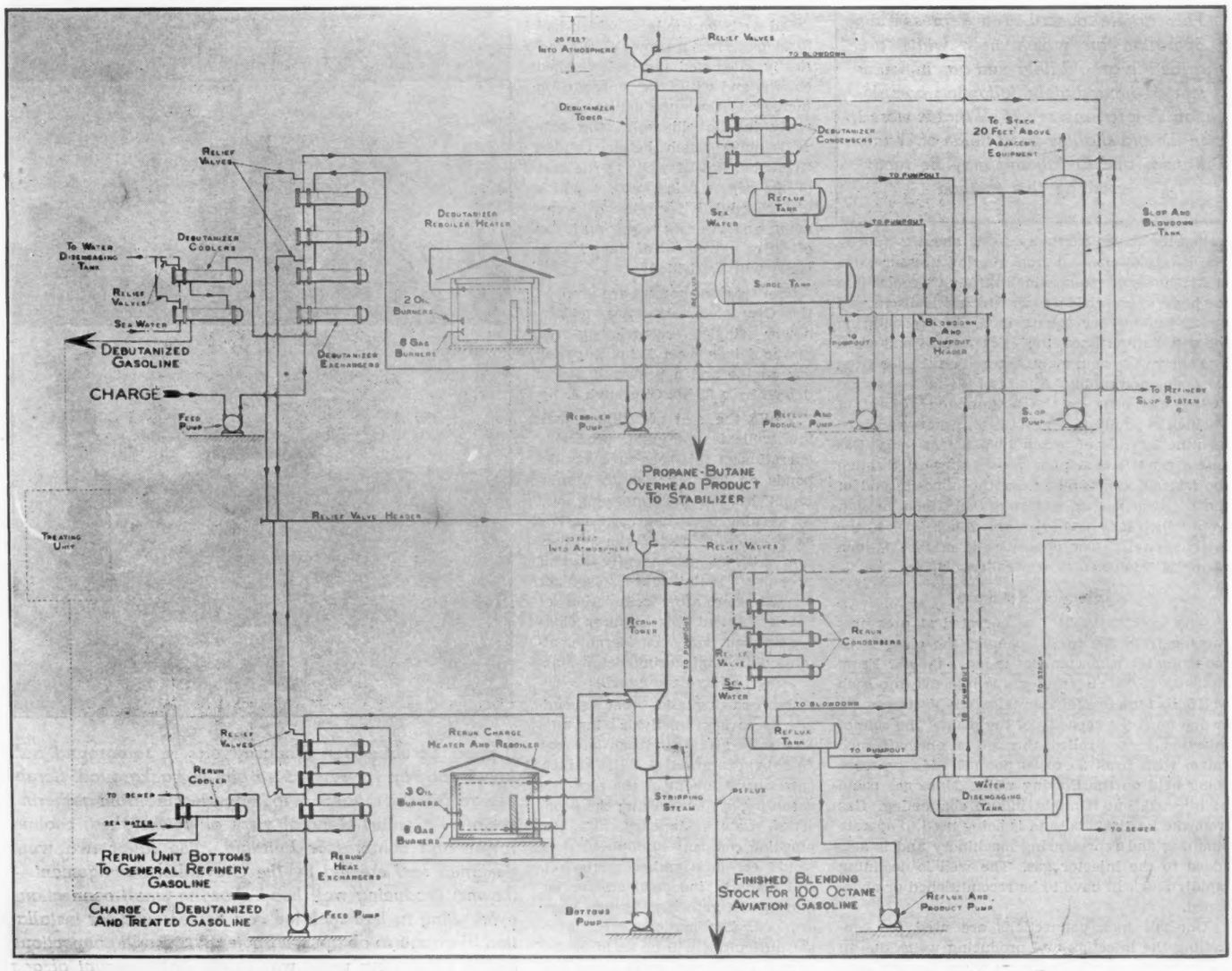
Aviation gasoline having a 100-octane antiknock rating has become established as an economic reality within the last two years, and is no longer regarded as a laboratory curiosity. It has been estimated that 90 per cent of the U. S. Army Air Corps aircraft fuel consumption for 1938 will be of the 100-octane grade, and there is no doubt that commercial planes will be using 100-octane motor gasoline exclusively in the very near future.

One hundred octane aviation gasoline is usually prepared by blending about 50 per cent of 70 to 76-octane, straightrun gasoline with 40 per cent of commercial isooctane, 10 per cent of isopentane and a maximum of 3 cubic centimeters of tetraethyl lead per gallon.

Gasoline that is suitable for processing to 70-76-octane blending medium may be obtained from a number of sources but nonuniformity of the various gasolines requires considerable flexibility in the equipment for the production of the blending stock. One of the major refining companies has recently installed units with a high degree of flexibility for debutanizing and rerunning a considerable variety of stocks to produce 70-76-octane straightrun gasoline. The general arrangement of the debutanizer and rerun units for production of high octane blending gasoline is indicated in the accompanying flow diagram.

Straightrun gasoline is first processed in a debutanizer in which propane and excess butane are withdrawn overhead since these fractions are not desired in the aviation gasoline. Following debutanization the gasoline is fractionated in the rerun unit to produce a cut of the required boiling range.

The charge of straightrun gasoline is pumped through heat exchangers, wherein it is preheated



Simplified flow chart of unit making straightrun blending stock for 100-octane aviation motor fuel

Automatic Injector
Ejector, Syphon or Jet Pump
"Navy Type" Liquid Level Gage
"Safeguard" Automatic Liquid Level Gage
"All-Iron" Automatic Liquid Level Gage
Gas Engine Lubricator
Snap Lever Oiler
Plain Brass Oil Cup
Plain Compression Grease Cup
EMPTY SPACE SHOWS WHITE LIQUID SHOWS BLACK
PENBERTHY Reflex GAGES
Preferred wherever liquid levels must be easily and positively visible . . . and when liquids are under pressure or at high temperature. Exceptionally rugged construction and made in any length desired for various kinds of liquids. Let us quote upon your requirements.
PENBERTHY PRODUCTS
PENBERTHY INJECTOR COMPANY
Manufacturers of QUALITY PRODUCTS Since 1888
DETROIT, MICH. • Canadian Plant, Windsor Ont.
Multiple Type Gage equipped with Drop Forged Steel Gage Valves.
FRAME BOLT
LIQUID CHAMBER
GASKET
GLASS
ASBESTOS CUSHION
FRAME
Screw Plunger Grease Cup
Spring Compression Grease Cup
Automatic Electric Sump Pump
Automatic Cellar Drainer (Water or Steam Operated)
Dipless Air Cock

by the debutanizer bottoms, and enters the tower near the middle. Adjustable weir-type bubble trays in the tower fractionate between the heavy bottoms and the undesirable propane and butane. The overhead, including propane and excess butane, is totally condensed in shell-and-tube water-cooled condensers and collected in a reflux tank. Part of the overhead fraction is recirculated to the top of the tower as a reflux to produce the required fractionation. The net overhead product of propane and butane is pumped to a stabilizer wherein the butane is separated for ultimate use as a general blending medium.

The bottoms from the debutanizer tower are split into two streams. One is pumped through a heater which vaporizes the lighter fractions to perform the stripping function in the lower section of the tower. The other stream, which ultimately forms a part of aviation gasoline, is piped to a surge drum. This drum "floats on the line" at the bottom of the debutanizer and receives, by gravity, any hot liquid that is not pumped through the reboiler. The surge drum performs two functions:

1. A quantity of liquid is constantly available for pumping through the heater tubes to prevent overheating.

2. Surge capacity is provided for subsequent intermediate treating operations.

The debutanizer bottoms leaving the surge drum pass through the heat exchangers mentioned above wherein they give up most of their heat to the incoming charge. They are further cooled by sea water in shell-and-tube coolers before being processed in a treating plant.

After treatment, the debutanized gasoline is processed in a rerun unit in order to obtain the desired endpoint. First, it is pumped through heat exchangers wherein some heat is obtained from the tower bottoms and it is then passed through the radiant section of a heater. Extreme care is taken to avoid overheating the charge because of color specifications. From the heater, the debutanized gasoline is charged directly into the rerun tower.

In order to assure adequate stripping in the lower section of the tower, part of the bottoms are circulated through the convection section of the heater which serves as a reboiler. The vapors that are liberated, together with the stripping steam, make the unit capable of producing the maximum volume of desired blending stock. The same pump that forces the bottoms through the convection section of the heater, also delivers the net stripped bottoms through the heat exchangers and coolers to storage for ultimate use in general refinery gasoline.

The overhead from the rerun tower is totally condensed in shell-and-tube condensers and collected in a reflux tank. Part of the overhead is returned to the top of the tower as reflux to control the endpoint. The remaining overhead product is the desired aviation gasoline blending medium which is pumped to storage for ultimate mixing with isooctane and isopentane.

TABLE 1—ALTERNATE OPERATIONS

	Case I Straightrun naphtha	Case II Straightrun naphtha	Case III Aviation gasoline base stock blended with light ends
Debutanizer charge stock—			
Barrels per day	11,110		6,112
A.P.I. gravity	54.0		75.3
Reid vapor pressure	7.0		18.0
Initial boiling point, ° F.	108		....
Per cent at 140° F.	2.6		....
Per cent at 158° F.	4.8		....
Per cent at 176° F.	9.2		....
Per cent at 212° F.	20.7		....
Per cent at 257° F.	38.6		....
Per cent at 302° F.	58.6		....
Per cent at 356° F.	83.1		....
Per cent at 374° F.	90.6		....
Per cent at 392° F.	95.0		....
Endpoint, °F.	401.0		....
Propane, liquid volume per cent	1.0		0.0
Butanes, liquid volume per cent	.....		19.45
Isopentane, liquid volume per cent	.....		18.75
Debutanizer overhead product—			
Barrels per day	244	500	1,598
Propane, liquid volume per cent	45.5	22.2	....
Butanes, liquid volume per cent	54.5	77.8	70.3
Isopentane, liquid volume per cent	....	....	29.7
Total per cent	100.0	100.0	100.0
Debutanizer bottoms product (rerun unit charge)—			
Barrels per day	10,866	10,610	4,514
Rerun unit bottoms—			
Barrels per day	6,302	6,897	Negligible
A.P.I. gravity	46.2	43.2	....
Rerun unit overhead product (aviation gasoline blending stock)—			
Barrels per day	4,564	3,713	4,514
Octane rating (antiknock)	70-72	74-76	76
A.P.I. gravity	63.0	69.0	66.1
Reid vapor pressure	7.0 (max.)	7.0 (max.)	7.0
Initial boiling point, °F.	111	111	105
Per cent at 140° F.	4.5	9.0	10.0
Per cent at 158° F.	13.0	24.2	29.0
Per cent at 194° F.	38.5	67.0	62.0
Per cent at 212° F.	55.5	86.0	77.0
Per cent at 257° F.	89.0	97.0	95.5
Endpoint, °F.	290.0	265.0	295.0

This is a finished stock ready for blending with commercial isooctane and isopentane to produce 100-octane aviation gasoline.

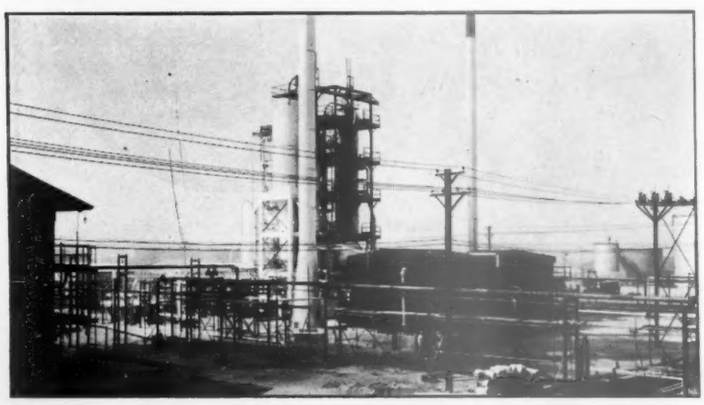
Steam Requirements

The requirements for steam are reduced to a minimum in this installation and it is used only for stripping in the rerun tower. The heaters are direct-fired, of the single-end type with six gas burners. In the debutanizer furnace, two additional oil-fired burners, employing mechanical atomization, are furnished as alternates. The heater for the rerun unit is similarly equipped for alternative oil firing except that three oil burners are used instead of two. All of the pumps are motor-driven with self-venting, vertically split casings.

In all of the coolers and condensers the baffles are of Muntz metal, tube sheets of naval bronze, channels and covers of NiResist, and floating head covers of either bronze or NiResist. However, since the stock passing through the two debutanizer condensers is particularly corrosive, special precautions were taken for the protection of these units by using monel metal on the shells, ring flanges, nozzles, and shell covers.

The debutanizer and rerun units are designed for maximum safety and high "on-stream" time due to their great importance in the manufacture of 100-octane aviation gasoline. All heat exchangers, coolers and condensers are by-passed on both the shell and channel sides so that any one of them may be withdrawn from service for inspection or repairs while the other units continue to operate. After a heat exchanger has been out of service, there is the possibility of human error in that hot oil may be admitted to the shell while the cold side is full of oil and the valves are closed. The transmission of heat to the constricted cold oil would cause dangerous expansion and pressure on the channel side, if it were not for a three-quarters inch relief valve that is provided on each heat exchanger. The condensers and coolers are also protected by relief valves. All major relief valves are installed in duplicate with an interlocking device in order that one will always be in service. Outlets from all relief valves are either extended 20 feet vertically to discharge to atmosphere or are piped to a relief valve header which conducts any vapors or oil directly to a blowdown drum. This drum, which is part of a complete blowdown system, is arranged for rapid relief of any or all of the pressure vessels by remote control through blowdown headers, and to collect slops from each tower whenever desired. Any liquid collected therein may be discharged to the general refinery slop system by means of a special pump.

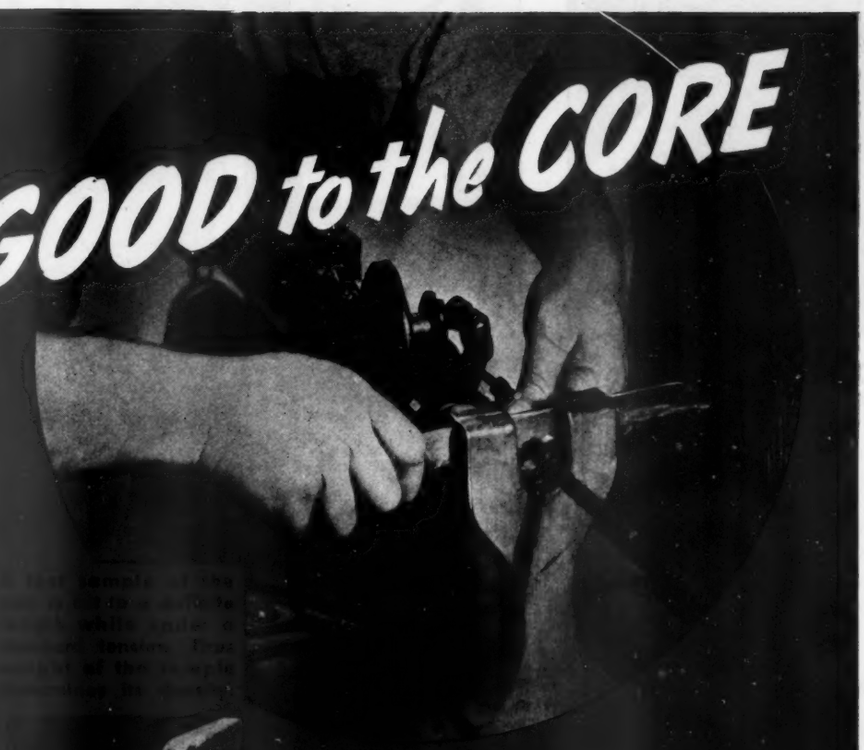
Fire protection against possible leaks in the condensers and coolers is obtained by conducting all of the cooling water to a water-disengaging drum. Any vapors that may be present either here or in the blowdown drum are vented through a stack to the atmosphere at an elevation 20 feet above surrounding equipment.



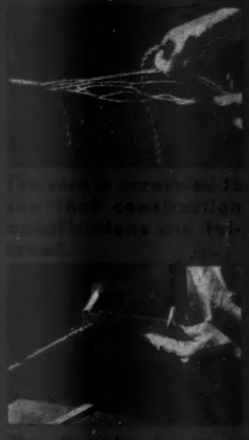
General view of heater and towers as part of unit making high-octane straightrun gasoline for blending to make 100-octane aviation fuel

New refinery offices of Ancap in Uruguay

GOOD to the CORE



BUILDING LIFE INTO WICKWIRE ROPE
BEYOND SPECIFICATIONS



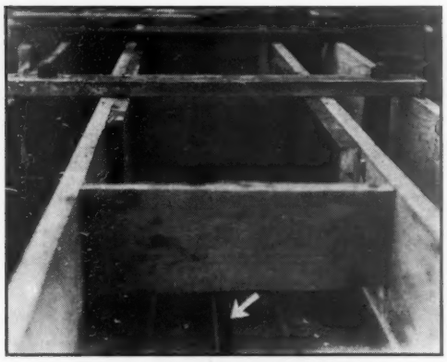
The diameter is measured as a check of core uniformity.

WICKWIRE ROPE

It is still the privilege of the progressive manufacturer to build rope life into his product beyond official specifications.

WICKWIRE SPENCER STEEL COMPANY

OPERATING IDEAS



Pipe for Dynamite to Destroy Foundation

Putting down concrete for an engine foundation is easy but getting it up again when it comes time to abandon the well is another matter. Some operators put a 1½-inch pipe in the bottom of the foundations into which dynamite is placed when they are ready to demolish the concrete block.

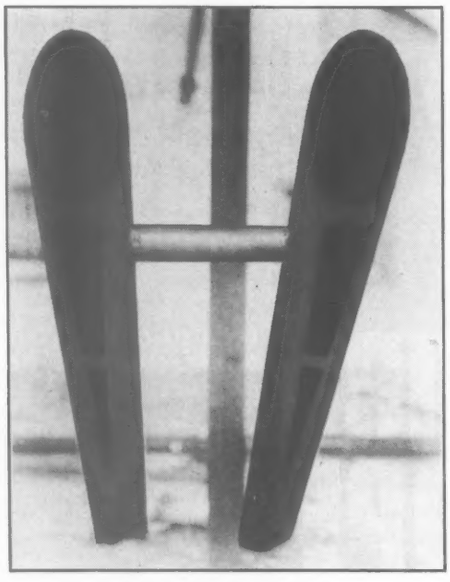
Hanger for Wire Line Spool

This tubing crew found it necessary to install a new line on the pulling unit but when the truck arrived at the location with the new line on a spool there were no blocks that could be placed under the reel. A 3-inch pipe was placed through the spool in the usual manner and chains passed over the first girt of the derrick and around the pipe; boomers made the chains tight. The truck then drove out from under the the spool and it was then in position for quick stringing of the line for use by the pulling crew.

Cage Protects Well Head

In the narrow channel of the Sabine River, wells are completed with the top of the casing and the control valves above water. Spring floods, however, bring high water levels; structures high enough to rise above the water during flood stages would be expensive. One company avoids this trouble by planning for normal water levels. The control gates and well head are surrounded with a heavily reinforced wire mesh, on a steel frame to withstand the pound of flood borne debris. Access to the valves during low water stages is through the open bottom of the cage. During water high enough to submerge the footwalk and justify the construction of the cage, access is by boat.

Double Muffler for Compressor Engine



The design of exhausts adopted by a plant owner makes it possible to stand beside exhausts from a 40-hp. engine and carry on a conversation. The 8¼-inch casing is cut at a 45-degree angle and the under side is V-slotted with an area equal to end of the pipe; this gives a total exhaust area that is nearly three times as great as the cross-section cut at a normal angle to the pipes' axis. To further aid in muffling the exhaust, the 6-inch pipe from the engine extends into the 8¼-inch pipe and is cut with taper and slots like those in the 8¼-inch pipe.

Eye-Bolt for Polish Rods

Adjustment of the working valve is easy on this pumping unit because of the eye-bolt welded to the top of the polish rod. Pulling of the rods is equally easy. Ordinarily two clamps are necessary whenever the position of the polish rod must be changed or the rod string is to be pulled. On this well a chain passed through the eye-bolt and around the beam will allow adjustments to be made and it requires only tying on of the line for pulling of the rods.

Dubbs refiners—tell them

"After reading 'BETTER BUSINESS FOR INDEPENDENT OIL JOBBERS,' any man who cares would want to know more about Dubbscracked gasoline and the names and locations of the refiners who make it"—*A letter to Universal from a Texas jobber*

WHAT luck for Dubbs refiners when jobbers want to know more about Dubbscracked gasoline

What a break for jobbers when they get Dubbscracked gasoline to sell—and what luck for their customers

You get twice the break if you sell it by its right name—Dubbscracked gasoline Then your customers will know why it's good

They'll remember where to come back for more

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

Ethylene Hydrocarbons Subjected to Hydro- and Dehydropolymerization

By S. S. NAMETKIN
L. N. ABAKUMOVSKAYA
M. G. RUDENKO*

In earlier articles a new type of transformation of ethylene hydrocarbons under the influence of concentrated sulfuric acid was discussed.[1] This transformation was termed hydropolymerization. From studies with several ethylenes and alicyclic hydrocarbons it was shown that these hydrocarbons undergo first a polymerization which is followed by a reaction of hydrogenation as a result of which, instead of unsaturated polymers, the corresponding hydropolymers of a saturated character are formed. The mechanism of hydropolymerization of ethylene hydrocarbons can be clarified only when the source of hydrogen is known at the expense of which hydrogenation reactions of unsaturated polymers take place. Only one experimentally established fact serves in this connection: under the influence of concentrated sulfuric acid ethylene hydrocarbons undergo not only a hydropolymerization with formation of hydropolymers, but also a reversed transformation i.e. dehydropolymerization with formation of highly unsaturated compounds. The latter are eliminated from the sulfuric acid layer by the dilution of it and rapidly condensed into a resinous or asphalt-like mass.

The process of polymerization of ethylene hydrocarbons (1) using the example of isobutylene, the reaction of its hydropolymerization (2) with formation of a hydrodimer, and also the dehydropolymerization taking place simultaneously and leading to formation of high molecular dehydropolymers (3) can all be expressed by the following outline:

1. $SO_2(OH)\ (OC_4H_9) + C_4H_8 = SO_2(OH)_2 + C_8H_{16}$ (dimer)
2. $SO_2(OH)\ (OC_4H_9) + C_8H_{16} = SO_2(OH)\ (OC_4H_7) + C_8H_{18}$ (hydrodimer)
3. $nSO_2(OH)\ (OC_4H_7) = nSO_2(OH)_2 + (C_4H_6)_n$ (dehydropolymer)

It is known that polymerization of ethylene hydrocarbons easily takes place not only under the influence of sulfuric acid, but also in the presence of other catalysts. In order to find whether this will also be the case with hydropolymerization, a study with aluminum chloride was undertaken, and this showed that hydro- and dehydropolymerization is also observed in the case of that reagent (see the article by S. S. Nametkin and M. G. Rudenko in Journal of General Chemistry, Vol. 7 (69), No. 3-4, p. 763). Consequently the phenomena of hydro- and dehydropolymerization are apparently of a general character to the same extent as phenomena of polymerization of ethylene hydrocarbons.

As known from the literature, ethylene and its homologues can be converted under suitable temperature and pressure conditions in the presence or absence of catalysts such as phosphoric acid into a mixture of liquid hydrocarbons in which gasoline fractions of a boiling range of 40-160 degrees can reach 70 per cent or more.[2] This determines a new way of treatment and utilization of cracked gases and gases of pyrolysis which has enormous practical possibilities. Polymerization of olefins, depending upon the conditions, can be either thermal or catalytic. Under thermal polymerization a reaction uniting several molecules or elements is understood to occur, resulting in formation of a dimer, trimer, etc., and proceeding at the expense of energy supplied from the outside. No other substances participate.[3] There is, however, no difference in principle in the thermal polymerization and catalytic polymerization. A thermal polymerization of ethylene at 330 degrees under a high pressure resulted in formation of a mixture containing 8 per cent paraffins, 60 per cent olefins, 32 per cent naphthenes and no aromatics.[4] The same process, when carried out under the mentioned conditions, only in the presence of phosphoric acid, gave 46 per cent paraffins, 7 per cent olefins, 21 per cent naphthenes and 26 per cent aromatics.[4] On the other hand, catalytic polymerization with dilute sulfuric acid or zinc chloride can be made to yield practically only olefins.

The composition of the product should be the basis for classification of transformations of unsaturated hydrocarbons. In this case we will have two types of conversions.

1. Polymerization i.e. process of formation of unsaturated dimers, trimers and in general polymers. This process in its pure state is observed under the influence of various catalysts (dilute sulfuric acid, zinc chloride, etc.) at low temperature.

2. Hydro- and dehydropolymerization of unsaturated hydrocarbons, a process of polymerization accompanied by the reactions of hydrogenation and dehydrogenation. This process leads to formation of hydrodimer, hydrotrimer and in general a hydropolymer of a saturated character, and the balance of hydrogen is preserved by formation of products of far-reaching dehydrogenation of initial unsaturated compounds. Unlike action in the presence of sulfuric acid, in the presence of phosphoric acid the dehydropolymerization results in formation of aromatics.

Literature References

1. Jour. Gen. Chem. (U.S.S.R.) 2, 608 (1932); 6, 1166 (1936).
2. Jour. Gen. Chem. (U.S.S.R.) 5, 1407 (1935); 6, 32, 335 (1936).
3. Jour. Gen. Chem. (U.S.S.R.) 6, 327 (1936).
4. Jour. Gen. Chem. (U.S.S.R.) 6, 324 (1936).

*This translation from Jour. Gen. Chem. (U.S.S.R.), Vol. 7, (69) No. 3-4, pages 759-62 (1937) has been submitted by the Petroleum Division of the American Chemical Society. The Petroleum Division, however, assumes no responsibility for the facts and opinions presented in this paper, nor does it necessarily endorse statements made therein. Translated by foreign litture service of the Process Management Co. Authors' title, "Hydro- and Dehydropolymerization of Ethylene Hydrocarbons."

Aluminum Chloride Reactions on Unsaturated Hydrocarbons

By S. S. NAMETKIN and M. G. RUDENKO*

Studies of the action of aluminum chloride upon hydrocarbons have been for the most part confined to saturated hydrocarbons and oil products (cracking with aluminum chloride). The effect of aluminum chloride on unsaturated hydrocarbons has been studied to a much smaller extent. Because of the considerable theoretical and practical interest in connection with synthetic lubricants a study was undertaken which showed that as far as technical amylene, caprylene and cyclohexene are concerned, essentially the same processes of hydro- and dehydropolymerization are observed as those brought about by the action of concentrated sulfuric acid and some other reagents upon unsaturated hydrocarbons.[2] Under the influence of aluminum chloride, however, there is a more pronounced destructive polymerization and hydropolymerization of unsaturated hydrocarbons than occurs in the presence of concentrated sulfuric acid.

This study indicates that amylene reacts readily in the presence of aluminum chloride; caprylene, more difficultly; and still more difficultly, cyclohexene. Two layers are formed, in the upper layer of which unsaturated polymers and also saturated hydrocarbons — hydropolymers — are found. The lower layer consists of a complex compound from which water liberates a mixture of unsaturated, partly resinified hydrocarbons which apparently is formed as a result of dehydropolymerization of the initial product. Because

*This translation from Jour. Gen. Chem. (U.S.S.R.), Vol. 7 (69) No. 3-4, pages 763-775 (1937), has been submitted by the Petroleum Division of the American Chemical Society. The Petroleum Division, however, assumes no responsibility for the facts and opinions presented in this paper, nor does it necessarily endorse statements made therein. Translated by foreign literature service of the Process Management Co. Authors' title, "Transformations of Unsaturated Hydrocarbons by the Action of Aluminum Chloride."

of the definite cracking action of aluminum chloride, the final products of the reaction contain, along with the usual hydro- and dehydropolymers, cracked products and products the molecular weights of which indicate that they are intermediate between the monomer and dimer or between the dimer and trimer, etc. These actions make the composition of the final product so complex that it becomes increasingly difficult to isolate separate polymers. However, in the case of cyclohexene, the writer succeeded in partial isolation of such a compound. A careful investigation showed that two compounds were present, one an unsaturated pentamer of cyclohexene, tetracyclohexylcyclohexene, while the second was tetracyclohexylbenzene. This apparently is a special case in which formation of an unsaturated polymer of cyclohexene, its pentamer, is first observed; this apparently undergoes simultaneously a hydrogenation with formation of the corresponding hydropolymer and dehydrogenation with formation of the corresponding aromatic hydrocarbon, tetracyclohexylbenzene. If this assumption is correct, it should be expected that the more aromatic hydrocarbons the final product contains, the lower will be its content of unsaturated compounds and vice versa. The experimental evidence obtained by the writers completely confirmed this assumption. Action of aluminum chloride upon cyclohexene at 50 degrees resulted in formation of a product which on fractionation in vacuum yielded products which had iodine numbers ranging from 7.8 to 22.9. The iodine number of the product obtained at 70 degrees was not higher than 5.6 and in one case it was even as low as 0. Consequently, the product obtained at 50 degrees contained a marked amount of unchanged unsaturated polymers, and isolation of the aromatic hydrocarbons from this product was very difficult. On the contrary, the product prepared at 70 degrees contained almost no unsaturated polymers while its content of aromatics was so high that tetracyclohexylbenzene could be isolated.

Conclusion

An important conclusion can be drawn from these facts; namely, that aromatic hydrocarbons are one of the products of conversion of cyclohexene under the influence of aluminum chloride, and that these aromatic hydrocarbons are products of dehydropolymerization taking place simultaneously with two other reactions: polymerization and hydropolymerization of the initial hydrocarbon. Generalizing this conclusion and extending it to other cases of conversion of unsaturated hydrocarbons in the presence of aluminum chloride, the chemical reactions taking place can be defined as follows: Interaction of unsaturated hydrocarbons with aluminum chloride results first of all in polymerization of the initial system with formation of di-, tri, and tetramers, as well as other polymers of the initial hydrocarbon. These polymers further undergo conjugated transformations of two types: a part of the polymer is subjected to dehydropolymerization with formation either of highly unsaturated polymers that accumulate in the heavier layer as complex compounds, or aromatic hydrocarbons; the second part of the unsaturated polymers undergoes hydrogenation at the expense of the hydrogen liberated in the process of dehydropolymerization, and forms hydropolymers of saturated character. These changes result in the formation of high molecular weight hydrocarbons of saturated or unsaturated character in which the number of carbon atoms in the molecule is a multiple of the original number of carbon atoms in the initial olefins. Partial cracking of unsaturated hydrocarbons under the influence of aluminum chloride with subsequent interaction of the products formed, as well as reaction with initial olefins, results in formation of products of destructive polymerization as well as destructive hydro- and dehydropolymerization, in which case the number of carbon atoms in the resulting hydrocarbon of saturated or unsaturated character will not constitute a multiple of the number of carbon atoms in the original olefin molecule.

TABLE 1—HYDROPOLYMERIZATION OF AMYLENE WITH 10 PER CENT ALUMINUM CHLORIDE. PROPERTIES OF THE FRACTIONS OF LUBRICANTS

Experiment No.	Experimental conditions	Boiling temp. (5 mm.) of lubricant fractions*	Specific gravity d_{15}^{20}	Refractive index n^{20}	Iodine No.	Vis., Engler E_{20}	Vis., Engler E_{100}
1	Technical amylene, 32 hrs. at 60°	200-250°	0.8390	1.4668	55.3	12.0	1.8
		250-300°	0.8524	1.4730	47.9	....	5.3
3	Technical amylene, 118 hrs. at 50°	200-250°	0.8424	1.4688	25.7	11.0	1.8
		250-300°	0.8513	1.4735	20.9	48.2	3.7
4	Technical amylene, 9 hrs. at 55-60° ...	200-250°	0.8396	1.4676	....	4.4	1.4
		250-300°	0.8483	1.4725	50.3	14.9	1.9
5	Methyl-ethyl-ethylene, 30 hrs. at 55-60°	200-250°	0.8462	1.4710	....	10.9	2.0
		250-300°	0.8537	1.4762	21.7	....	3.6

*Both fractions (200-250° and 250-300°) were separated by repeated distillation.

TABLE 2—PROPERTIES OF SOME POLYMERS OF AMYLENE AFTER HYDROGENATION

No.	Formula	Boiling point	n^{20}	d_4^{20}	Molecular weight, determined	Molecular weight, calculated
1	C_9H_{20}	130-150°	1.4112	0.7260	131.5	128.2
2	$C_{10}H_{22}$	150-160°	1.4148	0.7328	143.2	142.2
3	$C_{14}H_{28}$	230-234°	1.4374	0.7587	185.9	184.2
4	$C_{15}H_{32}$	238-245°	1.4404	0.7801	211.2	212.3
5	$C_{15}H_{32}$	255-258°	1.4430	0.7920	209.4	212.3

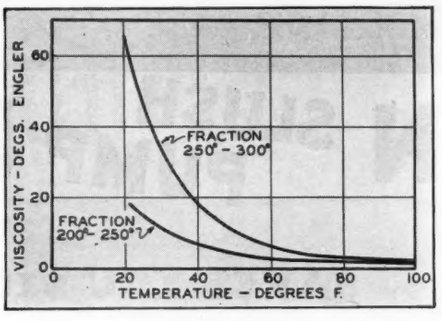


Fig. 1—Viscosity curves

Preparation of Amylene

In the experimental part of the work the treatment of amylene, prepared by dehydration of isoamyl alcohol with aluminum chloride is described. The liquid upper layer boiled at 100-300 degrees under 5 mm. pressure. Fractions boiling between 200 and 300 degrees under 5 mm. pressure were oily and unsaturated. Three series of experiments were carried out in which time of reaction as well as the amount of aluminum chloride used varied. In one series 5 per cent of aluminum chloride was used, in the second 10 per cent and in the third 100 per cent. When 100 per cent of aluminum chloride is used, 75 to 80 per cent of amylene is consumed in formation of the complex; with 10 per cent of aluminum chloride complex formation consumes not more than 20-25 per cent of the amylene and for this reason small amounts of aluminum chloride were used in further experiments. Table 1 shows the results of some of the experiments. The complex of amylene with aluminum chloride violently reacts with water liberating HCl and hydrocarbons with a boiling range similar to that of the oily product, but of higher refractive indices. Because the re-

TABLE 3—HYDROPOLYMERIZATION OF CAPRYLENE

Experiment No.	Experimental conditions	Fractions	Specific gravity d_4^{20}	Specific gravity d_{15}^{20}	Refractive index n^{20}	Iodine No.	Solidification temperature lower than:	Viscosity, Engler 20°	50°	75°	100°
1	55-60°, 5% $AlCl_3$	Up to 150° (6 mm.)	.....	.....	1.4500	43.7	....	....	....	....	....
		150-210° (6 mm.)	.....	.....	1.4621	33.2	....	....	....	....	....
		210-245° (6 mm.)	0.8369	0.8381	1.4660	34.4	....	....	....	....	....
		245-270° (6 mm.)	0.8400	0.8414	1.4683	22.0	....	....	....	....	....
		Complex: 130-245° (6 mm.)	.....	.....	1.4631	52.2	....	....	....	....	....
2	90-95°, 5% $AlCl_3$	Up to 100° (4 mm.)	0.7665	0.7677	1.4210	32.2	....	....	....	....	....
		100-140° (4 mm.)	0.7970	0.7983	1.4444	33.6	....	....	....	....	....
		140-200° (4 mm.)	0.8288	0.8300	1.4591	35.3	....	....	....	....	....
		200-250° (4 mm.)	0.8415	0.8428	1.4670	23.4	—40°	15.7	3.6	1.8	1.4
		250-300° (4 mm.)	0.8491	0.8504	1.4715	18.0	—35°	55.9	8.9	3.3	1.8
		Complex: 110-290° (4 mm.)	.....	.....	1.4661	76.0	....	....	....	....	....
3	60-70°, 10% $AlCl_3$	Up to 75° (3 mm.)	.....	.....	1.4131	9.6	....	....	....	....	....
		75-140° (3 mm.)	0.7957	0.7965	1.4451	7.2	....	....	....	....	....
		140-200° (3 mm.)	0.8024	0.8036	1.4554	9.4	....	....	....	....	....
		200-240° (3 mm.)	0.8133	0.8144	1.4649	8.3	—40°	18.8	4.0	1.9	1.4
		240-290° (3 mm.)	0.8229	0.8242	1.4690	5.2	—35°	65.2	9.9	3.6	2.0
		Complex: 80-260° (3 mm.)	.....	.....	1.4710	115.8	....	....	....	....	....
4	90-95°, 10% $AlCl_3$	Up to 200° (760 mm.)	.....	.....	.....	9.6	....	....	....	....	....
		Up to 140° (4 mm.)	0.7982	0.7994	1.4446	5.1	....	....	....	....	....
		140-200° (4 mm.)	0.8188	0.8200	1.4558	4.5	....	....	....	....	....
		200-250° (4 mm.)	0.8375	0.8388	1.4559	3.8	....	14.0	3.2	1.8	1.3
		250-300° (4 mm.)	0.8467	0.8480	1.4669	0	—35°	52.1	7.4	2.9	1.7
		Complex: 150-260° (4 mm.)	.....	.....	1.4781	130	....	....	....	....	....

MR. OIL MAN—
YOU CAN USE THIS SAME PISTON BODY

OVER AND OVER AGAIN...

when you standardize on

MISSION SLUSH PUMP PISTONS

SAVES YOU $18.50 A PAIR EACH TIME YOU CHANGE RUBBERS

(7¼" size. Other sizes in proportion)

Simply dress up the Piston Body shown above with New Rubbers and you have the piston complete, as shown at the right . . . ready for another long run of efficient performance.

RECORDS FOR EXCEPTIONAL ECONOMY MADE THE WORLD OVER

See at the Oil-World Exposition, Houston, April 24-29

MISSION POLICY
IF A PRODUCT DESIGNED BY MISSION IS NOT PROVEN SUPERIOR MISSION WILL NOT PRODUCE IT

MISSION MANUFACTURING CO.
HUMBLE ROAD, HOUSTON, TEXAS
EXPORT OFFICE: 30 ROCKEFELLER PLAZA, NEW YORK

• SLIPS • VALVES • PISTONS • PISTON RODS • SWABS

action product is a complex mixture of hydrocarbons of different degrees of saturation, separation of which is difficult, it was subjected to hydrogenation over platinum black. The composition and properties of some products resulting from this hydrogenation are given in Table 2. Although these are not individual hydrocarbons the diversity of their composition and difficulties in isolation of separate components show that along with normal hydropolymers such as hydrodimer, hydrotrimer of amylene, etc., various products of destructive hydropolymerization such as hydrocarbons of the general formula C_nH_{2n}, $C_{12}H_{26}$, etc., are present in the oily product. Fractionation of hydrogenation products and determination of anilene points for these fractions shows that in spite of the opinion expressed by some writers naphthenes are not formed by the interaction of unsaturated paraffin hydrocarbons with aluminum chloride.

Study of Caprylene

Caprylene was studied as a normal chain hydrocarbon, the molecular weight of which approaches that of the lightest component of the raw material used for production of the so-called synthetic lubricant oil by the action of aluminum chloride upon the ligroin fraction of pressure distillate. The caprylene used in these experiments was prepared by the action of phosphoric acid on primary octyl alcohol and boiled at 120-122 degrees and 744 mm.; its refractive index at 20.5 degrees was 1.4135. It was treated with 5-10 per cent of aluminum chloride for 30-hour periods. Action of aluminum chloride on caprylene was less vigorous than in the case of amylene. Data concerning the fractions of the upper layers and the properties of the oily products obtained from the complex compounds are given in Table 3. It is seen that refractive indices, iodine numbers and the degree of unsaturation of the latter are considerably higher than those of the products obtained from the original oily layer. This indicates that the basic transformation of caprylene under the influence of aluminum chloride consists of hydropolymerization resulting in saturated hydropolymers; at the same time dehydropolymerization also takes place, and this results in formation of highly unsaturated dehydropolymers. Temperature and the amount of aluminum chloride used are also of importance. Complete hydropolymerization of caprylene does not occur with 5 per cent of aluminum chloride at 55-60 degrees or even at 90-95 degrees. However, 10 per cent of aluminum chloride at 60-70 degrees and especially at 90-95 degrees brings about a complete hydropolymerization, the iodine number of the resulting compound being 0. Solidification of the oily fractions is within the limit of the highest requirements made with regard to mineral lubricant oil.

The fraction of the mixture boiling up to 200 degrees at 2 mm. was hydrogenated and fractionated. The physical properties of the compound obtained showed that the process of hydropolymerization of caprylene under the influence of aluminum chloride runs similarly to that of amylene, namely the basic process results in formation of hydrodimers, hydrotrimers, and generally hydropolymers of normal type. At the same time destructive hydropolymerization also takes place, and this results in formation of hydropolymers at the expense of parts of the initial hydrocarbon, formed as a result of the cracking action of aluminum chloride.

Cyclohexene was prepared by dehydration of cyclohexanol with sulfuric acid. This hydrocarbon is more stable toward aluminum chloride than amylene or caprylene. The complex formed by the action of 10 per cent aluminum chloride upon this hydrocarbon for 15-30 hours decomposed with water gave an oil that quickly became resinified and was not investigated further. The iodine numbers of the oily layer were low especially if the conversion of cyclohexene was carried out at 70-80 degrees and was completed. As the iodine number of the dimer of cyclohexene is 155, the conclusion is justified that polymerization and dehydrogenation or, in other words, hydropolymerization occurs when this hydrocarbon is treated with aluminum chloride, just as is the case of conversion of cyclohexene with concentrated sulfuric acid,[7] and unlike the process taking place in the presence of phosphoric acid, in which case only polymerization without hydrogenation is observed.[8] Hydrogenation of the fraction boiling at 200 degrees under 10 mm. pressure in the presence of platinum on carbon resulted in the formation of the hydrodimer and hydrotrimer of cyclohexane. The higher boiling products were not hydrogenated. By repeated fractionation, the hydrotetramer of cyclohexene, $C_{24}H_{42}$, was isolated and from the residue a pentamer of cyclohexene $C_{30}H_{50}$ was extracted by isopropyl alcohol. Tetracyclohexylbenzene $C_6H_2(C_6H_{11})_4$ was also isolated by extraction with cold benzene.

TABLE 4 — HYDROPOLYMERIZATION OF CYCLOHEXENE, IODINE NUMBERS OF OIL FRACTIONS

Experiments at 45-50°		Experiments at 70-80°	
B.P. (10 mm.)	Iodine No.	B.P. (3-4 mm.)	Iodine No.
110-125°	7.2	100-200°	5.6
125-150°	16.5	190-193°	0
150-200°	22.9	222-226°	5.1
200-230°	19.8	.....	...

Literature References

1. Nash, Stanley, Bowen, Petr. Times 24, 799, (1930).
2. Sullivan, Voorhees, Neely and Shakland, Nat. Petr. News 23, 47 (1931).
3. L. G. Zherdeva, Neftyanoe Khozyaistvao (The Pet. Industry) No. 10 (1932).
4. Szayna, Prsemysl. Chem. 12, 637 (1928).
5. Waterman, Leenderse and others Rec. trav. chim. 53, 715 (1934) 54, 79, 193, 245 (1935).
6. O. Aschan, Lieb. Ann. 324 (1902); C. Engler and O. Routala, 42, 4613 (1909).
7. S. S. Nametkin and L. N. Abakumovskaya, J. Gen. Chem. (U.S.S.R.) 2, (64) 608 (1932).
8. Truffeault, Bull. de la Soc. Ch. de France (5), 3, 442 (1936).
9. S. S. Nametkin and M. G. Rudenko, J. Gen Chem. (U.S.S.R.), Vol. 7, (69) No. 3-4, pages 759-762.

SAFETY — Bathtub Saves Refinery Workers

Fire is one of the ever-present hazards at a refinery, particularly where high-pressure units are in operation. Men have been seriously or fatally burned when they failed to heed the warning to roll on the ground in case their clothes became ignited. On the other hand, many men have been saved by jumping into spray ponds or pools of water when their clothes were aflame.

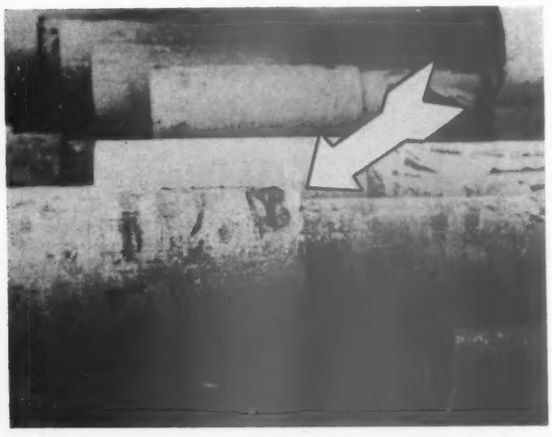
This plant of a major refiner, located on the Gulf Coast, has introduced this bathtub, centrally located and large enough to hold two men. It was built by the company welder and has a 50-gallon capacity.

A week before this photograph was taken, the tub received its first caller when a minor explosion ignited a workman's clothing. Despite the fact that he had to run some distance to reach the tub, he extinguished the fire before suffering more than minor burns.

Water is connected directly into the tub and an overflow is provided so the tub is always full in case of emergencies.

"THE ABERCROMBIE PRESSURE GAUGE *Saved us* A TOUGH FISHING JOB"

"The steady readings of the Abercrombie PRESSURE GAUGE kept us from dropping 3,000 feet of drill pipe in the hole at Fairbanks recently," says Driller George W. Meadows, of Rutherford Drilling Company. "We knew something was wrong when this gauge, in use on the mud line, registered a drop in pressure. We started out of the hole to investigate and discovered a joint eight thribbles down had begun to wash in two. You can figure for yourself where such a washout would have put us! And you can see where tthat put this gauge with us . . . especially when steady pressure readings is only one of its many advantages over other pressure gauges."



Above: The beginning of a washout which would have meant a parted drill pipe string and a tough fishing job. Right: Close-up of the Abercrombie Pressure Gauge, the self-contained dampening mechanism of which assures uniformly steady pressure readings. This gauge serves equally well for mud, water, oil, air, gas, or any liquid.

FLUID PISTON CLASH PUMPS
ABERCROMBIE PUMP CO.
GULF BLDG. HOUSTON TEX.

Driller George W. Meadows knew something was wrong, pulled out to check up, and saved a costly fishing job.

Engine Water Being Treated in Closed Reconditioning System

By J. P. O'DONNELL

Recognizing the importance of properly conditioned cooling water in efficient operation and maintenance of engines and compressors, the Brundred Oil Corp., one of the largest operators in the Middle district Pennsylvania fields, is employing an efficient water treatment at its No. 1 plant on the Cornplanter lease in Cornplanter Township, Venango County.

It is a closed system using water purchased from the city. The water, treated in the municipal water plant, is well suited for this purpose, having a pH value of 7.4. A detailed analysis of this water (grains per U. S. gallon) follows:

SiO_2	.4
R_2O_3	.1
Ca	1.8
Mg	.3
Na	1.2
SO_4	.9
Cl	1.9
CO_3	2.6

A further analysis showing probable combinations (grains per U. S. gallon) follows:

Silica	.373
Iron and aluminum oxides	.093
Calcium carbonate	3.406
Calcium sulfate	1.281
Magnesium carbonate	.884
Total incrusting solids	6.037
Alkali sulfates	Trace
Alkali chlorides	3.060
Alkali nitrates	Trace
Loss, etc.	.095
Organic matter	Trace
Total nonincrusting solids	3.155
Total soluble mineral salts	9.192

Treating System

The comparatively low mineral matter content of this water made it more desirable for cooling purposes than other water available near the plant but its carbonate hardness was regarded as sufficient to warrant treatment for the prevention of scale formation in the water jackets which eventually would have reduced heat transfer. This treatment consists of circulating water over a quantity of tannin brick. One-half pound of this material is used for each 1,000 gallons of make-up water.

The system has a throughput of 215,000 gallons per day. A two-week check of the losses, made during the past summer, showed that this amount averaged 1,000 gallons per day, a loss of less than one-half of 1 per cent of the total handled. All losses were attributed to evaporation and spray. This volume of water carries off more than 18,000,000 B.t.u. per day from the engine and compressor ends of the twin, direct-driven, 185-hp. units. The water flows by gravity from the supply tank to the centrifugal water pump which is operated at 1,250 r.p.m. by a belt from a pulley bolted to the crankshaft. Seven lines, one from each of the compressor ends, two from each of the engine ends and a safety line, the operation of which will be described later, return the water to the treating system.

The inlet and outlet temperatures of the six service lines, the pounds of water per minute each carries and the number of B.t.u. each carries away are shown in the following table:

Line No.—	°F. in	°F. out	Lbs./ min.	B.t.u./ min.
Compressor ends:				
1	91	98	138.3	968
4	91	98	66.6	466
Engine ends:				
2	91	106	180.0	2,700
3	91	101	257.1	2,571
5	91	104	360.0	4,680
6	91	96	240.0	1,200
Total			1,242.0	12,585

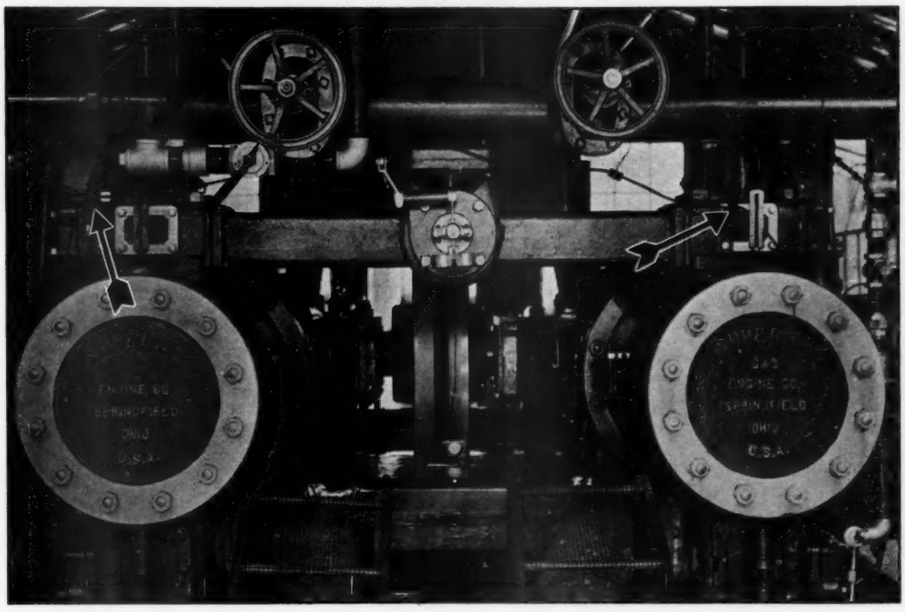
Lines and Connections

The 18-foot water tower and the 250-bbl. capacity tank are part of the system together with lines running to and from the plant. Water from the municipal water works enters the plant system through a 2-inch line which admits the water at the top of the tank. The line is carried in a tall, box-like arrangement which is packed with sawdust to prevent freezing of the line. A smaller box houses a quick opening valve for flushing the accumulated sludge from the tank. This box is likewise packed with sawdust. The 3-inch valve is attached to a series of welded, perforated pipes covering the tank bottom. A central 3-inch main discharge line serves six 2-inch T's, three on either side. Numerous perforations extend along the bottom of each pipe.

The quick opening of the gate valve, a regulation valve with the threads removed, causes a sudden, suction-like action that thoroughly flushes the bottom of the tank. This is accomplished with the loss of a comparatively small amount of water and does not require shutting down the plant. Before the installation of this device it was necessary to empty the tank completely and to shut down the plant during the cleaning-out period. After leaving the cooling jackets the water returns to the tower which it enters after passing through troughs in which crushed tannin brick is placed. From the trough overflow it passes downward through a series of five screens consisting of quarter-inch hardware cloth and by the time it reaches the tank, the water resembles heavy mist. Thus the treatment and cooling are accomplished in a single operation. The screens are enclosed in louvres which have substantially reduced losses occasioned by wind-driven spray.

Automatic Shutdown Device

The seventh or safety line previously mentioned carries water to an automatic shutdown device which operates in the event of a complete shutoff or a substantial diminution of the flow. Water from this line empties into a bucket with a hole in the bottom. The hole is not large enough to accommodate all the water as long as the flow continues at a normal rate and consequently there is a steady overflow. If the water supply ceases or is diminished sufficiently, the bucket empties through the hole. The bucket, when full, balances weights which are released when it is emptied. The release of the weights opens switches, to which the weights are connected by wires, on each of the engines, thus shutting them down. The location of these switches is indicated by arrows.



Arrows point to location of automatic switches on engines

Making up a Knuckle Joint for open hole deflection. A rotary shoe is substituted for the diamond point bit in formation or in deflection from a cement plug.

LANE-WELLS KNUCKLE JOINT AND ORIENTING EQUIPMENT

Lane-Wells Knuckle Joint is a tool built to drill at an angle to the axis of the drill pipe through the medium of a universal joint. The direction of the drilling angle is controlled by orientation of the tool into the hole. Both the tool and orienting methods are patented by Lane-Wells Company. If you would like to know more about drilling control and its application, send your name and address. No obligation.

DRILLING--

LANE-WELLS OFFERS ACCURATE, DEPENDABLE DIRECTION CONTROL SERVICE FOR HOLE DEFLECTION, STRAIGHTENING OR RE-DRILLING

Drilling control, whether it be to side-track junk, to straighten a dog leg or to make a hole bottom at a predetermined point, requires special tools and experienced directional drillers. When you call Lane-Wells for a "direction job" you get the tools that made direction control possible and men who have run them successfully under almost every conceivable drilling condition. Oil well operators who are familiar with drilling control problems will tell you—"get Lane-Wells and have the job done right."

LANE WELLS COMPANY

TECHNICAL OIL FIELD SERVICES

LOS ANGELES • HOUSTON • OKLAHOMA CITY • NEW YORK

LANE-WELLS SERVICES AND PRODUCTS INCLUDE: GUN PERFORATORS • OIL WELL SURVEYS • DIRECTION CONTROL OF DRILLING WELLS
PACKERS • LINER HANGERS • BRIDGING PLUGS • SINGLE SHOT SURVEY INSTRUMENTS • KNUCKLE JOINTS • WHIPSTOCKS AND MILLS

ow a 4" double which provides the ecessary flexibility, the Knuckle Joint is suspended over the hole.

The first stand of drill pipe is oriented by the derrick man in a swing. From the first position all readings accurately record pipe rotation.

Knuckle Joint positioned for orientation and ready to be lowered.

Rotation of each stand of drill pipe is accurately measured and the Knuckle Joint is directed to correct deflection.

Progress in METALS

By W. L. NELSON

Direct or Routine Tests

Following is a partial copy of an editorial prepared by H. W. Gillett, which recently appeared in Metals and Alloys. Although it is reprinted largely for metallurgists, many of the points in it apply equally well to petroleum engineers.

"Custom sets up certain tests for metallurgical materials from which one judges whether the lot is characteristic of its class. The demand for results of these tests soon makes them routine and they tend to be made whether the information they give is to be used or not. In plants supplying raw or semi-finished material, where testing is on a routine basis, the cost is not greatly increased if 120 instead of 100 chemical analyses for a certain element are made per day; the data serve as protection in case of customer complaints, and there is always the likelihood that some variable may crop up to be tackled by probability methods so that data on many samples are worth their weight in gold.

"Moreover, if the question at issue is the identity of a new lot with some previously supplied, the more properties that match, the better the probability of identity, even though the real property that is crucial in the performance of the material is not measured at all, as it very often is not.

"In many cases of university theses and the like, where time and cost permit handling but a few lots of material and sweeping generalizations are likely to be drawn by the authors, it would be unwise to let down the bars. Very complete descriptions of the materials used, in terms of standard tests, are needed in order that the reader may weigh the results for himself and form his own judgment on how characteristic the material used really was.

"However, it might be worthwhile now and then to stand back and look at our routine tests, asking whether some of the effort might not profitably be diverted to other tests. For example, we would swap a good many determinations of P and S in steel ready for shipment on which the ladle analysis was available, for a few determinations of grain-coarsening properties.

"On standard type material, a hardness and a bend test would often evaluate it quite as well as a tensile test, and obviate the cost of machining and testing the tensile specimen.

"Similarly, many publications and many internal reports carry more micrographs than are really useful, merely proving that the structure was what one would expect from a given composition and treatment. Visual inspection and the record 'indistinguishable from photo number so and so' would often do just as well as a micrograph. In some types of reports it is necessary that proof be shown, but in many it is redundant.

"If some of the needless routine tests were omitted and replaced by even qualitative tests for properties not ordinarily tested for, when unusual alloys are being studied, some of the services for which the alloys are fitted might be revealed far earlier than is normally the case.

"On the whole, we'd like to see the criterion for testing be the finding of information we can use, rather than filling in a lot of blanks set up on a form because some other fellow is accustomed to filling them in."

Bond of Clad-Metals

The covering of plate, vessels, lines, etc., with corrosion resistant alloys is becoming an important method of fabrication. Alloys that have been extensively used for this purpose are 18-8 chromium-nickel steel and pure nickel. One of the first questions that arises is whether or not the clad material is tightly bonded to the base metal.

One method of test is indicated in Figures 1 and 2 which show the preparation and results obtained with a composite standard tensile strength specimen. Although this test indicates that the bond between the nickel and the steel is stronger than the steel, the test is not altogether conclusive. The curved fillet at the end of the machined part of the test specimen aids in reducing the notch effect at the nickel-to-steel bond —but it may also be effective in strengthening the specimens at this point. At least, test specimens do break in the center more often than at the ends. It would seem that a whole range of specimens, having the bonded section at various points along the specimens, should be examined before a conclusive decision can be made. The degree of polishing on parts of the machined section also affects the results to some extent.

Another test consists essentially of a tension of a specimen which has been cut down leaving only the covering material as a thin section but reinforced at the ends for purposes of attachment to the tension machine, by thicker sections of the regular clad metal. By bending one end of the specimen at right angles it is possible to apply a partial tearing action (the test is called a "tearing test") at the bond between the two materials. In such tests, the thin section of clad-metal always breaks and the clad-metal does not tear from the base metal. Again, it appears that the notches at the ends of the thin portion would probably be the weakest points in the specimen and that the break should occur at one of these points rather than by tearing at the bond.

Another test which has been conducted is a compression test of blocks of steel having clad-metal along one side and having a large hole through the block. Whether or not the load is applied parallel or at right angles to the hole, the steel base appears to be no stronger than the bonded section and no tendency toward failure at the bonded section is evident.

Although the above discussion infers that the test methods now in use are unsatisfactory, it should not be inferred that the bond between base metal and clad metal is not satisfactory. In fact the tests indicate to some extent that bonding is good but that more adequate tests are necessary if decisive data are to be obtained.

Metallurgical Terms

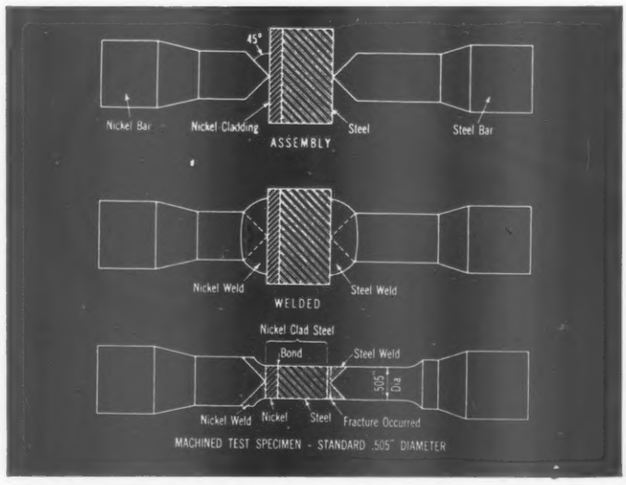
Shortness or Brittleness

Shortness is the term used by workers of metal in referring to brittleness during working operations. "Hot shortness" is brittleness when hot, "red shortness" is brittleness at a red heat, and brittleness occurring in steel when in the temperature range of 400° to 700° F., or when cold after being worked within this temperature range is referred to as "blue brittleness."

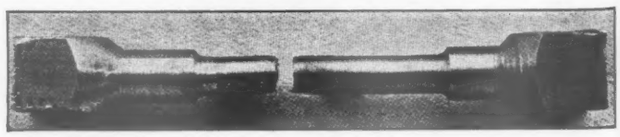
Steels seldom leave the manufacturing plant in such conditions, or are not recommended for service conditions in which these ailments are important, but in steel manufacturing operations these types of brittleness are of vital importance.

Burning and Overheating

As alloys or metals are heated, the tendency for the grains to grow or enlarge becomes more pronounced. Overheating is defined as heating to such a high temperature that the grains have become coarse, thus impairing the properties of the metal. Burning is the same as overheating except in degree of temperature and damage attained. In this case the melting point is approached causing the coarse structure often attained in cast metals. Permanent injury may result by melting of the more fusible constituents, by the penetration of gases such as oxygen into the metal with consequent reactions, or perhaps by the segregation of elements already contained in the material.



Special composite test bar proves that the strength of bond between nickel and steel in nickel-clad steel is greater than 50,900 pounds per square inch



The fractured test specimen after tensile testing. The nickel bar and the still intact nickel-clad steel are at the left. On the right is the steel bar in which fracture took place in the steel weld at a load of 50,900 pounds per square inch

New Catalytic Polymerization Unit in Johnson Oil Refinery

By WILLIAM J. LEENHOUTS
Superintendent Johnson Oil Refining Co.

The polymerization process is one of the most important developments in the petroleum industry. A new Universal Oil Products Co. nonselective polymerization unit, the most modern equipment for making high-octane gasoline and also increasing yield, has just been put into operation by the Johnson Oil Refining Co. at Cleveland, Okla. The plant was built by the Johnson Oil Refining Co. from plans and specifications furnished by the licensor, the Universal Oil Products Co. of Chicago. About two years ago the company put in one of the newest Dubbs selective cracking plants by which it was possible to make 70-72 octane cracked gasoline from topped crude. Now it has made this further improvement of installing a new polymerization plant which will make gasoline of 82-85 octane, and this polymer gasoline has a blending value with straightrun gasoline of 110 to 120-octane. This new polymerization plant will still further improve the already high octane cracked gasoline which has won a high reputation amongst the trade.

A cracking process converts large heavy molecules of fuel oil, by means of temperature and pressure, into lighter hydrocarbons of the gasoline boiling range. The principle in polymerization is just the reverse of cracking. In polymerization we take the small gaseous molecules and bring them together under the proper conditions of a rather low temperature and high pressure so that they will react to make a new and larger molecule of very high octane value and belonging to the gasoline boiling range. In the cracking process gases are produced which formerly were burned under the stills for fuel. In order to produce a high octane gasoline by cracking, a breaking down of the higher molecular hydrocarbons must take place and gas is produced as a by-product. This gas is used in the process of making polymer gasoline.

The cracking plant stabilizer is so operated as to drive off all C_3 and most of the C_4 hydrocarbons. In our selective type cracking plant the gases from the stabilizer yield about 45 to 47 per cent propene C_3H_6 and butene C_4H_8 hydrocarbons. The propene and butene hydrocarbons are convertible in a catalytic polymerization plant. The new polymerization plant will both increase the yield and the octane value of the gasoline. The gasoline yield is increased approximately 3 per cent and this in turn reduces crude requirements about 6 per cent for the same quantity of gasoline.

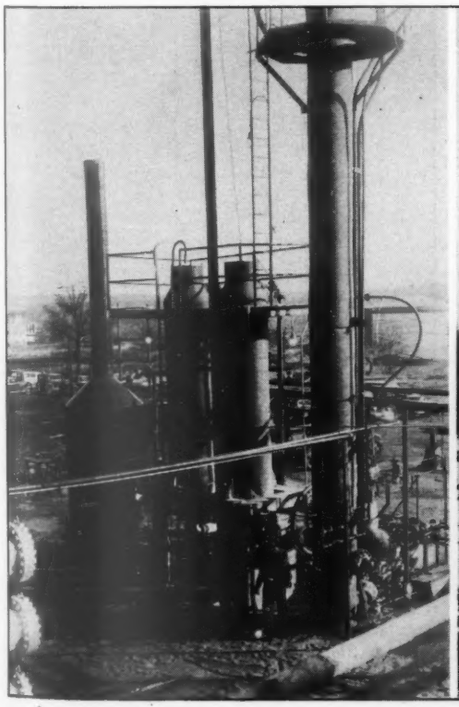
We will now briefly describe the passage of the gas through the various parts of the plant:

Compressor

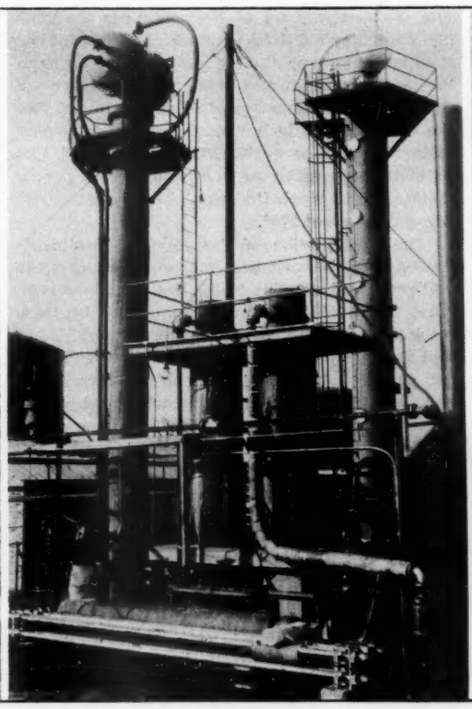
A compressor is used to feed the gases to the poly plant at a pressure of about 500 pounds. The compressor is a 6 by 16-inch single action by a Cooper-Bessemer gas compressor unit equipped with adjustable unloader, powered by a 50-hp. Diesel engine. The Diesel engine was chosen as a power drive because of its reliability and dependability. The normal capacity of the compressor is 800,000 cu. ft. per day at a temperature of 150° F., 180-pound suction pressure and 500-pound discharge pressure.

Furnace

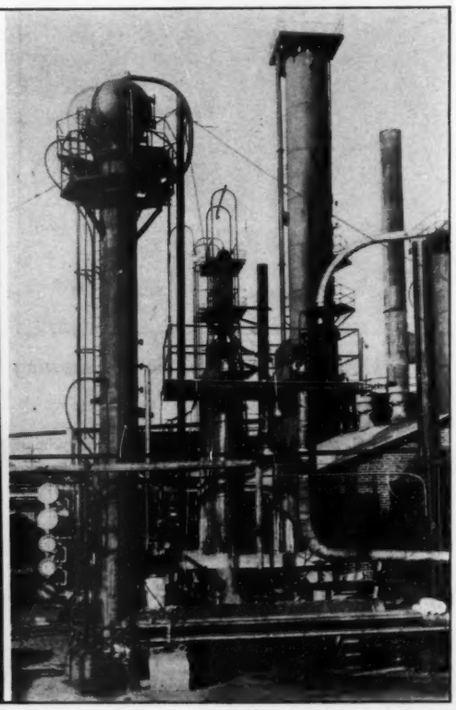
The compressor discharges the gas at about 180° F. to the furnace where it is heated to about 325° to 400° F. While the catalyst is new the gases are being heated to about 325° F. and this temperature will be increased up to 400° F. as the activity of the catalyst decreases. The furnace is a cylindrical shell 6 feet in diameter and lined



Heater, two catalyst towers, stabilizer. Reboiler and condensers; coolers in background.



Condensers, coolers and reboiler in foreground and catalyst towers, heater and stabilizer towers



Poly plant in foreground and cracking plant in background

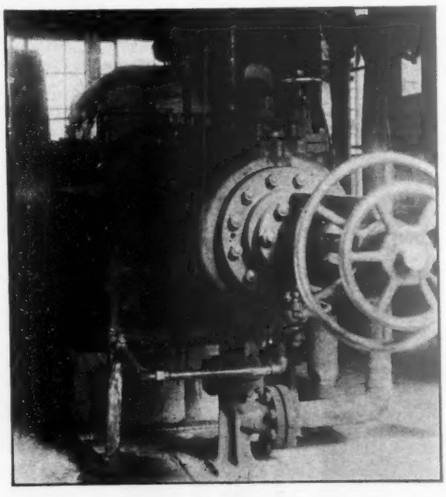
with 4 inches of Vermiculite-Lumnite cement insulation. The 2-inch coil through which the gas passes is spiral in form and is set about 3 inches from the wall of the furnace and winds up in a neat coil in the top of the furnace. The gas comes in at the top of the furnace coil and goes down through the furnace coil countercurrent to the flue gases coming up. The furnace heater is equipped with a Mason-Neilan diaphragm control valve, operated by means of a Taylor temperature controller, making the temperature control of the furnace automatic.

Catalyst Towers

From the furnace the gas passes to the catalyst towers. There are two catalyst towers 30 inches in diameter and 15 feet 6 inches long by 15/16-inch wall thickness, good for an operating pressure of 500 pounds at 500° F. The catalyst towers are filled with a solid phosphoric acid catalyst.

In these towers when the gases contact the catalyst the temperature increases approximately 110° due to the exothermic reaction which takes place. The greater part of the reaction takes place in the first tower and the increase of temperature is about 90° The increase in temperature in the second tower is only about 20° The temperature of the polymer gasoline after it leaves the catalyst towers is about 440° F. and the conversion is now complete. The towers are operated at about 500 pounds pressure. The elevated pressure gives a high capacity of polymerization and a maximum throughput. The conversion of olefins over the first 30-day period has run about 98 per cent.

The chemical changes which take place in polymerization cannot be confined to a few most desirable reactions, namely, of combining two molecules



Inside view of compressor house, showing compressor

of C_3 and C_4 series to make a gasoline molecule of C_6, C_7 or C_8 series.

A great number of products may be produced. The most simple of these reactions would be:

Ethylene C_2H_4 + propylene C_3H_6 = pentenes C_5H_{10}
Propylene C_3H_6 + propylene C_3H_6 = hexenes C_6H_{12}
Propylene C_3H_6 + butylenes C_4H_8 = heptenes C_7H_{14}

These simple reactions do not represent even a small part of the reactions that take place. When we consider that the new product formed may be a combination of any two or more of the above simple molecules we can see how complicated the reactions may be. If the conditions of reactions are not carefully controlled the resulting product might even be fuel oil or tar. Although the greater percentage of gas will react to form the desired polymer gasoline, conditions must be carefully controlled; otherwise, there will be an overpolymerization of some of the products going through the catalyst towers.

Heat Exchanger or Polymer Condenser

After leaving the catalyst tower conversion of the gases to polymer is complete and the polymer gasoline, together with butane and propane, the

Geo. Shelton, engineer, Universal Oil Products Co.; R. B. Fowler, supt. cracking plant; Wm. J. Leenhouts, general supt.

unconverted gases are passed to the Griscom Russell polymer condenser. The hot polymer and gases pass through the shell of the condenser countercurrent to water going through the tubes and is cooled to about 180° F., at which temperature it is sufficiently cooled to enter the stabilizer tower for stabilizing.

Stabilizer

The stabilizer tower is 24-inch diameter by 30 feet 6 inches long and one-half inch wall thickness and is operated at 275-300 pounds pressure. The top temperature of the stabilizer tower is maintained by a Griscom Russell condenser of the shell and tube type, the hot gases passing through the shell counter-current to the cool water through the tubes. The tubes are of Admiralty metal and are three-fourths inch diameter. This condenser maintains a top temperature of about 118° F. The bottom temperature of the stabilizer tower is maintained by a reboiler which operates at a temperature of about 270°.

The fractionation of the polymer gasoline is known as stabilization or bringing the converted and recovered gasoline to the desired vapor pressure. This stabilization is accomplished by operating the tower at a bottom temperature of 275° F. and a top temperature of 120° F. and a pressure of 270 pounds, which is high enough to permit condensation of the desired hydrocarbons with a removal overhead of the light hydrocarbons which would exist as a gas at ordinary temperatures and pressures.

In stabilization the propane gases are driven off from the polymer gasoline, retaining as much butane as seasonal requirements will permit. The polymer gasoline is later mixed with the deep stabilized cracking plant gasoline of 5 to 6-pound vapor pressure and all the normal butane possible is utilized. Polymer gasoline from 10 to 30 pound R.v.p. can be produced, according to the product desired and to meet the seasonal demand.

The stabilized polymer gasoline is drawn from the bottom of the stabilizer through a stabilizer bottoms cooler, consisting of two Griscom Russell C.-fin type sections connected in series. The hot polymer gasoline passes countercurrent to cold water and leaves the cooler at a temperature of 70° ready for storage.

Inasmuch as the topped crude has a rather small amount of sulfur, no special treating process is necessary. The polymer gasoline is mixed with the other cracked gasoline and is sweetened by the usual doctor process. So far, polymer gasoline has shown a gum content of between 2.5 and 3.0 mgs.

The yield of polymer gasoline is a daily average of approximately 3,300 gallons, or 3 per cent, of 10-pound R.v.p. material, or 5,300 gallons, or about 5 per cent, of 30-pound R.v.p. About 10 gallons of 10-pound Reid polymer is produced for each 1,000 cu. ft. of fresh gas charged.

Conclusions

1. Polymerization produces a liquid boiling in the gasoline range from gases normally burned for fuel. This polymer gasoline is many times more valuable than the raw material from which it is made, thus making the process very economical to operate.

2. The polymer gasoline has a very high octane rating and a still higher blending value, thus producing a very high grade of motor fuel without the addition of lead tetraethyl, or its use in very small quantities.

3. Polymer gasoline not only increases the overall gasoline yield from crude oil, thus cutting down on crude oil requirements, but also gives a higher fuel value and efficiency to the gasoline produced.

SMALL RESERVE PIT

In the Zenith field, Kansas, there is a distinct tendency to lose circulation in the Lansing-Kansas City lime at about 2,500 feet but drilling contractors in the area have developed a technique

of handling this situation. The photo above, taken from the top of a derrick in the Zenith field, shows that the reserve pits used are very small.

The method used is to allow the mud to get fairly heavy before reaching the porous formation, about 10.2 pounds per gallon with a viscosity of about 38 degrees A.P.I. Just before hitting the Lansing-Kansas City, fibrous materials, either commercial products or cotton seed hulls, are added to the mud. By continued addition of the fibers until the dangerous formation is passed, circulation is maintained with little difficulty; some artificial materials are also added to raise the viscosity of the mud.

The mud is kept fairly heavy and viscous for the remainder of the well as any thinning of the mud might remove the cake in the Lansing-Kansas City and cause loss of circulation. By using this system only small reserve pits are necessary.

PROBLEMS FROM READERS

Edited by L. G. E. Bignell

Difference Due to Compressing Gas to Higher Pressures

When a pressure base of 24.4 pounds per square inch is used to compute natural gas measurements, which is 10 pounds above atmospheric pressure, how much would a seller gain per 1,000,000 cu. ft.? If he would use 16 pounds per square inch to compute measurements, or 2 pounds above atmospheric pressure? As a rule how many pounds above atmospheric pressure is generally used in computing measurements? The writer believes by using 24.4 pounds in comparison to 14.4 pounds the seller's loss is seven-twelfths of the actual amount of gas that has passed through meters. —D. W. F.

In your letter about compression of natural gas you seem to have answered your own question excepting that you have used the wrong per cent for loss.

The seven-twelfths which you state as loss is actually what the seller is paid for and his loss is five-twelfths or about 41 per cent. Roughly for every 1,000,000 cu. ft. of gas compressed to 24.4 pounds the seller delivers about 1,410,000 cu. ft.

Gas is usually sold on a pressure basis of 4 ounces above atmosphere but it may be bought at any pressure depending upon local conditions. The higher the pressure the smaller the volume of gas delivered. If you could sell gas at 16 pounds pressure instead of 24.4 pounds pressure it would represent a gain to you of about 49 per cent.

It is hoped this gives you the information you desire but for more detailed information about natural gas you are referred to Natural Gas Handbook by John C. Diehl, copy of which can be secured through the Book Department of The Oil and Gas Journal.

Data on Reserves and Valuation

I am studying "Valuation of Oil and Gas Properties" and need a comprehensive knowledge of the literature available on the subject. This includes, as a very fundamental part of the study, an estimation of the reserves and the recoverable oil and gas. Have you a list of what you have published in recent years, say since 1930, on either the reserve question or on the larger topic of valuation? Do you perhaps have a clipping service? Can you tell us of some good texts on the subject?—L. W. S.

If you have a file of The Oil and Gas Journal available you will find an index of all articles published in one of the January issues each year. If you do not have a file we do not know how we can serve you because we have published numerous articles on reserves, especially during the past three years, and have prepared a special reserve article in January, 1937, 1938 and 1939.

There are a number of books on valuation of oil and gas in place such as Bulletin 228, U. S. Bureau of Mines, 1924; "Appraisal of Oil and Gas," by Roswell H. Johnson and Paul Ruedeman, 1925; "Method of Appraising Results of Production Control," H. N. Marsh, A.P.I. Proceedings 1928; R. W. Brown, "Valuation of Oil and Gas Lands," McGraw-Hill Book Co., Inc., New York, 1924; C. E. Grunsky, "Valuation, Depreciation, and the Rate Base," John Wiley & Sons, Inc., New York, 1917.

The Petroleum Division of the A.I.M.E. has also published many articles on these subjects in the yearly transactions. If you have access to those books you should be able to find the data.

We do not maintain a clipping service. The books listed above may be obtained through our Book Department.

Capacity of Porous Formations to Contain Gas

Can you give me a means of calculating the volume of gas that may be contained in a porous underground reservoir?—J. C. R.

In Dorsey Hager's new edition of "Practical Oil Geology" he gives the following data:

"A few calculations will give some idea of the capacity of rocks to hold gas; also the large acreage that must be drained by gas wells.

"Assume as a unit, a sand 1 foot thick containing 20 per cent voids, or pore space, per cubic foot, and covering one acre.

"An acre-foot, or 43,560 cu. ft. of sand under the above conditions contains $43,560 \times 0.20 = 8,712$ cu. ft. of pore space. If this space is filled with gas at atmospheric pressure, it will contain 8,712 cu. ft.

"Gas volumes are measured at an average mean atmospheric pressure of 14.4 pounds per square inch, and at a pressure of 4 ounces (0.25 pound) above the mean atmospheric pressure. The pressure approximately corresponds to 14.7 pounds at 60° F., the pressure at mean sea level. In the estimates, 14.7 will be accepted. Theoretically, the temperature and depth shoud be taken into account, but in an approximate calculation, like that below, such refinements are of little value.

"The number of expansions for 100 pounds 'rock' pressure would be:

$$\frac{100 + 14.7}{14.7} = 7.8 \text{ expansions}$$

The total number per acre-foot will be volume of gas × expansions = 8,712 × 7.8 = 67,952 cu. ft. for a rock pressure of 100 pounds.

"For a 500-pound rock pressure, the expansions are 35, and the volume per acre-foot = 8,712 × 35 = 304,920 cu. ft.

"For 1,000 pounds pressure, the expansions are $\frac{1,000 + 14.7}{14.7} = 69$ instead of 78, as one would at first imagine, the added 14.7 pounds becoming of less consequence the higher the rock pressure becomes. The volume will be 8,712 × 69 = 600,164 per acre-foot. If the gas sand is 10 feet thick and the pressure is 500 pounds, the sand would contain 3,049,200 cu. ft. per acre; for the same thickness 1,000 pounds pressure, 6,001,640 cu. ft. A sand 50 feet thick would produce 30,000,000 cu. ft. per acre.

"Several 'wild' gas wells have produced from 30,000,000 to 70,000,000 cu. ft. per day for several months. Such wells undoubtedly drained gas from a considerable area. A gas well producing an average of 30,000,000 cu. ft. daily for 90 days would produce 2,700,000,000 cu. ft. of gas. If the gas sand were 50 feet thick with 20 per cent porosity and a 1,000-pound pressure producing 30,000,000 cu. ft. daily, 270 acres would be exhausted."

Back-Pressuring Wells in a Repressured Area

What is the best method of back-pressuring an oil well during the process of repressuring? I mean, whether to use fluid (oil or water), or to use a certain number of pounds gas pressure, or does it matter? We are repressuring in an 1,800-foot sand and the gas put into the input well is breaking through to other wells without bringing oil with it. I think that the reason the gas travels so quickly to output wells is that there are 2 or 3 feet of dry sand at top of pay section.—F. T. W.

Your problem is similar to one encountered in the Bradford, Pa., field when repressuring or water-flooding was first tried. After some water had been introduced into the producing formation it was found that it was escaping at output wells without carrying any appreciable volume of oil with it. Upon investigation it was found that the upper portion of the producing formation was quite permeable and dry and the water was flowing through that section rather than in the portion of the sand that still contained oil. To remedy this either the casing was lowered or a liner set, or the tubing with packer was run to some point below the dry sand strata. When casing or liner was used this sealed the upper portion of the formation and prevented water from by-passing from input to output wells without doing effective work. If the tubing and packer was set water might accumulate above the packer in the annular space between tubing and casing but as the top of the casing was shut in the flow of water was shut off as soon as this space was filled.

Using gas in your repressuring project you seem to have encountered the same general problem and you could build up back pressure in the output wells by setting the tubing with packer below the dry sand and then shutting in the casing. Or the casing could be lowered and perhaps cemented to seal off these upper strata and prevent gas from by-passing. Another way to build up back pressure in the output wells is to shut in the casing and then throttle the outlet on the tubing by the use of chokes but this will be only partially successful because if any gas can escape from the output wells there will still be the tendency for gas to by-pass from input to output wells and not do effective work.

It would hardly be advisable to flood the producing formation in the output wells with water or oil to build up back pressure because this would not remedy the primary cause of this by-passing for as soon as the well was produced the upper permeable strata would again be uncovered and the gas would by-pass.

Meaning of Abbreviations

In a list of publications by the U. S. Bureau of Mines I find the following description: "pp. i-v, 1-105, pls. 1-10 (including 1 map), figs. 1-29." Can you explain how this should be interpreted?—T. F. S.

The information means: pp. i-v, prefatory pages, numbered in Roman numerals—total 5; 1-105, pages numbered in Arabic numerals—total 105; pls. 1-10, plates contained in the publication —total 10; figs. 1-29, figures contained in the publication—total 29.

QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph. D., Technical Editor

Microflora Cause Gas Formation Corrosion and Color Loss

Is it true that certain bacteria develop in the water held in the bottom of oil storage tanks? Is it possible for such growth to cause corrosion or be responsible in any way for the loss of color when light oils are stored?—N. D.

The literature contains many reports of the action of microflora or bacteria resulting in the decomposition of chemical salts held in solution in water. Crude oil and liquid petroleum products will prevent the growth of some forms of life in water, when the water is covered with these oils. However, there appear to be other organisms that are not subject to this inhibitory influence. A recent report of the British Research Board contains some conclusions on the subject which are abstracted here.

The authors state that the water in the oil storage tanks is from rivers, estuaries or even from the sea, so it was anticipated that an appreciable microflora would be met with unless the mineral oils had exercised an inhibitory action on the micro-organisms introduced with the water. A preliminary investigation has shown that conditions in these tanks are such that a microflora can and does establish itself. The flora consists essentially of nonspore forming rods and of vibrois types. One water-bottom microflora gave rise to gas evolution, visible inside the tank as bubbles held in the phase between water and oil until either the bubbles had grown sufficiently large to overcome the resistance of the water-oil phase or sufficient disturbance had been caused to free the bubbles. This gas appears to consist in part at least of ethane, or methane, and hydrogen.

An interesting type of organism met with in every sample of water from oil storage tanks so far examined possesses powerful reducing properties towards sulfates which invariably have been present in the tank waters. The action of this organism on the sulfates results in their conversion into hydrogen sulfide which either combines with metallic substances suspended in or dissolved in the water, or penetrates through the water into the oil thereby contaminating it with sulfur in a corrosive form. In the former case the material of which the storage tank is constructed may suffer injury; in the latter case the oil may be adversely affected.

It was necessary to restrict the work to one of the types of microflora which appeared to be of special interest so the sulfate reducing organism referred to above was chosen. This type, which is found extensively in nature and met with in almost every crude mineral oil received in Great Britain, can be assumed to be present in the water of all oil storage tanks. Here conditions for its growth are invariably favorable, since its propagation is assured in any water which contains sulfates and the merest traces of organic carbon compound, provided the oxygen tension of the water is kept at a sufficiently low level either by other micro-organisms or by artificial means, and provided also that the reaction of the water does not exceed a certain maximum degree of acidity and alkalinity.

It may be that the formation of hydrogen sulfide, methane, ethane and hydrogen is the cause of some puzzling explosive mixtures in storage containers where oil and water are present. The loss of color of gasoline, kerosene and other light colored petroleum oils, while in storage has in many instances been difficult to explain, and it is possible that this bacterial action may be responsible for this deterioration.

References: Report Chemistry Research Board, Dec. 31, 1937 (London). J. H. Bunker, Microbiological Aspect of Anaerobic Corrosion, 2nd. World Petroleum Congress, Paris, June, 1937.

Export Gasoline Usually Described by Specifications in Contract

What is meant by "export gasoline"? Does this refer to a special grade of high quality gasoline fully identified in the trade by definite specifications?—S. B. C.

"Export gasoline" does not refer to a definite product; about all that it does mean with certainty is that the product is to leave the United States. A large part of the gasoline exported has an endpoint below 400° F., but a shipment of U. S. Government gasoline may have an endpoint above 400° because the 90 per cent point, 392° F., is the heavy end requirement, with no endpoint specified. Shipments for export are usually well covered by contract for quality, consequently there are more detailed requirements than those appearing in the ordinary trade designations.

The trade uses the term export gasoline in a broad way, simply for approximate price quotations. This practice includes: U. S. Motor gasoline, gasoline of 60-62° A.P.I. gravity with a maximum endpoint 400° F.; gasoline of 61-63 gravity and maximum endpoint 390° F.; gasoline 64-66 gravity and endpoint not above 375° F. Frequently the octane ratings are included.

The custom with respect to natural gasolines is even more indefinite. The product may vary in vapor pressure from 14 to 22 pounds, octane number 65 to 78 and A.P.I. gravity 80° to 86°. Each shipment is carefully described as to color and all other essential properties.

CHEMICALS FOR THE PETROLEUM INDUSTRY

Diethylene Glycol Monoethyl Ether

(Carbitol)

Use—Solvent for mineral oil soaps, correcting immiscibility, treating emulsified oils.

Form—Colorless liquid, with mild pleasant odor.

Formula—$C_2H_5.O.C_2H_4.O.C_2H_4OH$.

Specific gravity—0.9902.

Boiling point—395° F.

Flashpoint—210° F.

Solubility in water—Complete.

LIMITATIONS

Boiling range, °F.	min. 365 max. 401
Color, max.	No. 1 yellow
Specific gravity, max.	1.030 at 68° F.

Hydrocarbons Found in Lubricating Fraction of Petroleum

I am confused over the many statements giving different explanations of the type of compound of hydrogen and carbon present in lubricating oil. Have you any exact information on this subject?—T. C. W.

The chemical constitution of the lubricating oil fraction of petroleum has been studied during the past five years at the National Bureau of Standards. This investigation has been confined to a Mid-Continent petroleum which had been studied to determine the nature of the hydrocarbons present in the light oil fractions. A review and summary of this work was presented before the American Petroleum Institute in Chicago, November 14, 1938, by Dr. Frederick D. Rossini, director of the project.

The approximate average analysis of the lubricant fraction of petroleum with respect to kinds of molecules (taking the lubricant fraction as 100 per cent) is:

1. About 43 to 51 per cent is composed of molecules with one, two, or three naphthene rings, together with the appropriate paraffin side chains.
2. About 8.3 per cent is composed of molecules with one, two, or three naphthene rings and one aromatic ring, together with the appropriate paraffin side chains.
3. About 8.1 per cent is composed of molecules with two naphthene rings and two aromatic rings (condensed), together with the appropriate paraffin side chains.
4. About 6.6 per cent is composed of molecules with one naphthene ring and three aromatic rings (condensed), together with the appropriate paraffin side chains.
5. About 18 to 26 per cent is composed of normal (straight chain) paraffins, plus possibly some isoparaffins (branched chain).
6. About 8 per cent is composed of the "asphaltic" constituents, which have not been investigated.

Reference: Technical News Bulletin, National Bureau of Standards, December, 1938, page 113.

Chief Characteristics of Butane and Its Utilization

What is butane? If it is a component part of gasoline, what is its function? What is the main use made of butane?—S. F. P.

Butane is the fourth member of the paraffin series of straight chain hydrocarbons, having the formula C_4H_{10}, chiefly derived from natural gas. At normal temperatures it is a gas because it has a boiling point of 31° F. Commercial gasolines, sold for motor fuel, seldom contain butane beyond a trace which may be entrained. Its function, when present, would be to assist in making the gasoline vaporize at a low temperature and thus aid easy starting of the motor.

Large quantities of butane are used for fuel in districts where natural gas or manufactured gas is not available. The very high heating value, 3,250 B.t.u. per cu. ft., makes it possible to be diluted with air and then be distributed by pipe in small towns and villages for consumption as a domestic fuel. It is also sold in the liquid form in cylinders, from which it is released as a gas and then conducted to the heating appliances.

8 REASONS

YOU SHOULD GET COMPLETE INFORMATION ABOUT

PERCO COPPER SWEETENING

1. Treats products varying in gravity from liquefied gases to light heating oils.

2. Installations will fit refineries and natural gasoline plants—large or small.

3. Operation is clean and simple—requires little attention.

4. Chemical costs are lower.

5. Volume losses are reduced.

6. There is no measurable octane degradation.

7. And there are other advantages . . . sunlight stability is improved—more natural inhibitors are retained.

8. Savings over old-fashioned sweetening methods are large enough to make a PERCO COPPER SWEETENING unit an attractive investment.

For complete information write or wire

PERCO INCORPORATED

PERCO

Bartlesville, Oklahoma

Or consult our Licensing Representatives

L. S. GREGORY COMPANY
TULSA, OKLAHOMA

PROCESS MANAGEMENT COMPANY
120 East 41st St., NEW YORK, N. Y.

FOSTER WHEELER, LTD., ALDWYCH HOUSE, ALDWYCH, LONDON, W.C.2

Service on New Fields

SLAUGHTER FIELD, HOCKLEY COUNTY, WEST TEXAS

Compiled by The Oil and Gas Journal

Approved name:
Slaughter field.

Geographical location:
In southwestern Hockley County, West Texas, in the vicinity of Sundown, just north of the Terry County line.

Principal towns and cities near the field:
Levelland, a town of about 4,000 population, is 12 miles to the northeast; Lubbock, largest city in that area, 40 miles to the east; and Seagraves, with a population of around 3,000, 62 miles to the south.

Cities and towns where supply companies have branches:
Several supply companies have branch stores at Seagraves, but much of the field's supplies are from Hobbs, N. M., 110 miles southwest, and Odessa and Midland, 140 miles to the south. Odessa, main supply center for West Texas and New Mexico, is one of the largest supply centers in Texas.

Railways serving the area:
The Panhandle & Santa Fe Railroad has a spur line running to Seagraves from Lubbock. At the latter city the branch line connects to the main Santa Fe line running to Amarillo and to eastern Texas cities.

Character of roads:
An improved dirt highway has been built from the field to Levelland where it connects with State Highway No. 24. U. S. Highway No. 62 passes 20 miles to the east of the field. Other U. S. highways running through Lubbock are Nos. 84, 87, and 82. Improved dirt roads penetrate the field.

Trucking companies:
Three trucking companies operate from Seagraves, but much of the trucking is done by Hobbs, Lubbock, Odessa, and Midland firms.

Hotels and other accommodations:
Limited hotel accommodations are available at Levelland and Seagraves. Modern hotels at Lubbock, where many of the oil workers live, provide adequate and comfortable facilities.

Schools and churches:
Small community churches and schools exist at Seagraves and Levelland, with larger and more numerous institutions at Lubbock. Texas Technological College, with an enrollment of over 3,000, is located at Lubbock.

Electric power and gas companies:
Electric power lines have not as yet been extended into the field from Levelland. The area is served by Texas & New Mexico Utilities Co. No trunk gas lines serve the field.

Development:
The pool opener, Texas Co. and others No. 1 Guerry-Slaughter, was completed April 6, 1937, for an initial potential of 333 bbls. per day, flowing through a 1-inch choke, at a total depth of 5,030 feet (elevation 3,560 feet). Later that year a 1-mile and then a 3-mile extension was given the field so that as 1937 closed Slaughter had three producers with an indicated proven territory of over 1,000 acres. By June 1, 1938, eight producers had been completed and at the start of this year the total for the field was 12. Lack of pipe line outlet has acted to slow development so that most of the drilling has been in the nature of forced offsets or lease expirations.

Completions to date:
On March 1 the field contained 15 producers and one well in process of being completed.

Number of operations:
At present total operations in Slaughter consist of three drilling wells and two preparing to start operations.

Future activity:
Development in the field, which has been greatly hindered by lack of either pipe line outlet or refinery, is expected to materially increase in the near future. Especially so since construction of a pipe line to Levelland and an affiliated 3,000-bbl. refinery at this point are expected to get under way this month. From the area now covered by the field its semiproven area is estimated at 18,000 acres. Thus if the field is drilled to a density pattern of 17.7 acres, as set out in the field rules, at least 1,000 wells are yet to be drilled exclusive of any extensions.

Speed of drilling:
About 30 days are required from spudding time to contract depth; from 40 to 50 days are required for rigging up, drilling to casing point and drilling in with cable tools.

Character of mud:
Mud of about 9-pound weight is used to drill the surface hole, below which the red beds make a satisfactory mud. Some operators add bentonite at intervals to avoid losing mud in porous zones. The hole, however, stands up well and mud is no problem in this field.

Slush pumps:
At present only mechanical rigs are being used with 12 by 12 by 6¾-inch power pumps. Standby equipment is not used generally.

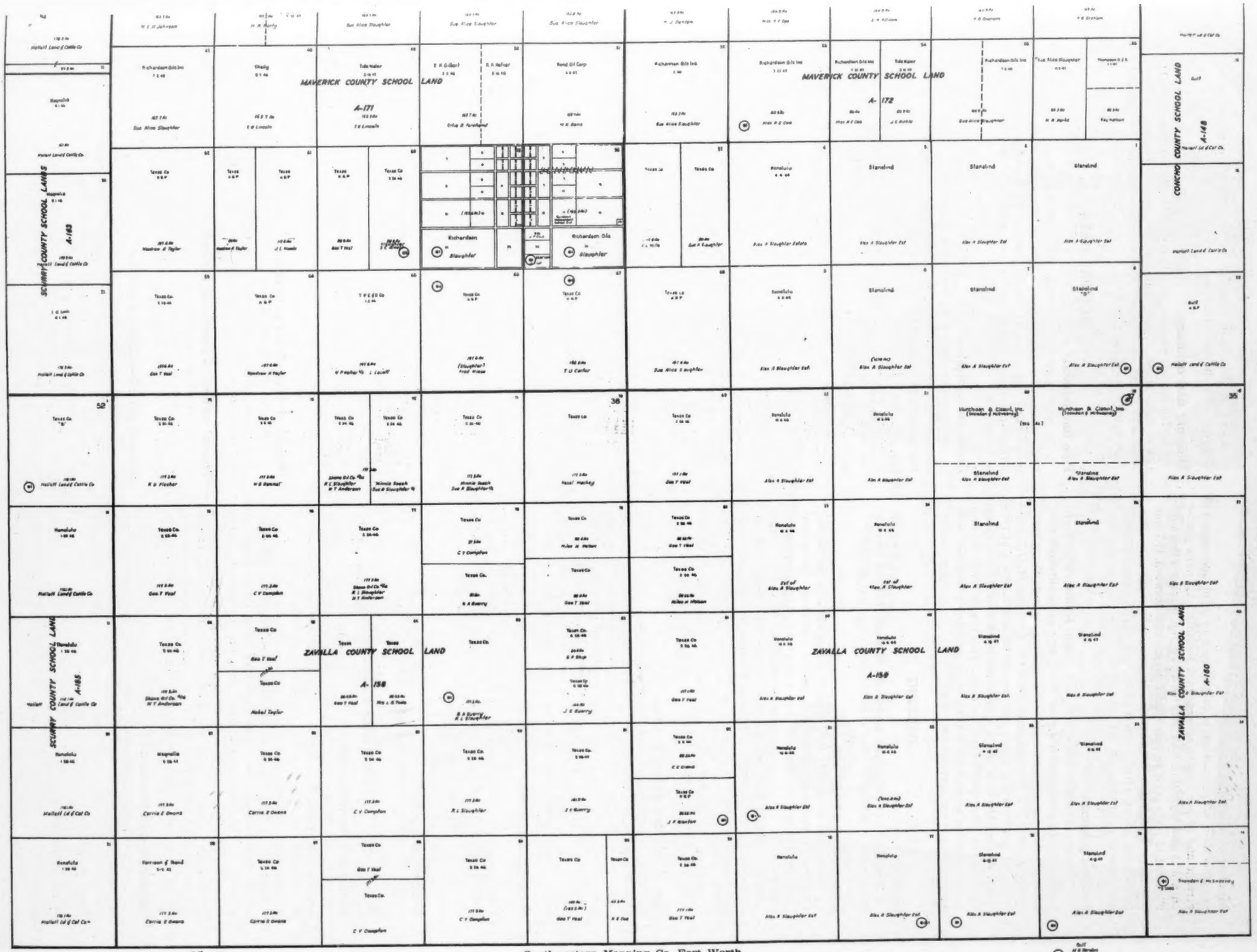
Water supply:
All water for drilling and lease used is obtained from 120 wells drilled to a gravel bed. No treating is required for use in engines.

General geology:
The field is believed to be located on the northern continuation of the east rim of the Central Basin Platform, along which Means, Deep Rock, Fuhrman, North Cowden and several others are located to the south. The Slaughter structure is thought to be a stratigraphic trap with large, broad cross folding and very little dip. Regional dip is to the northwest, the field being 150 to 200 feet lower than Duggan to the west and regionally higher than Bennett to the southwest. Production is obtained from a granular crystalline porous dolomite in lenticular or irregularly occurring zones of saturation through an average 80-foot pay section. Only 40 per cent core recovery is obtained in the pay section, thus making porosity determinations impractical. A typical section encountered at Slaughter is as follows:

Broken sand and shale	0- 150
Sand, shale and lime	150- 500
Top of red beds	500
Red beds and sand	500-2,200
Top of anhydrite	2,200
Anhydrite section	2,200-2,300
Salt section	2,300-2,800
Top of Yates sand	2,800
Broken anhydrite, salt and red bed section	2,800-3,800
Top of brown lime stringer	3,800
Top of solid lime	4,100
Lime and anhydrite to 30 feet above top of pay at approx. depth of	4,900

Potential differences noted under the same type of flow and completion indicate relatively wide variations in the pay section. Production is from the Permian big lime at a depth of 4,970 to 5,075 feet.

(Continued on Page 72)



Slaughter field, Hockley County, West Texas

Manner of allocation:

Allocation of production is 50 per cent of field allowable to acreage and 50 per cent to average unit potential. All wells placed on a 35.4-acre proration unit receive twice the acreage allowance allocated to wells on a 17.7-acre tract, with units between 17.7 and 35.4 acres receiving a proportional increase in acreage allowable. Permissible gas-oil ratio is 2,000 cu. ft. per barrel. Present daily allowable is 1,020 bbls.

Spacing pattern:

To date all wells except one have been drilled on 35.4-acre tracts, the one exception being on a 35.3-acre unit, although field rules provide for 17.7-acre units. The spacing pattern being used, however, will allow the field to be drilled to a density of 17.7 acres if future developments prove such action advisable. The odd proration unit is the result of the area being divided partly into Spanish "labores" and partly into sections. The tracts range in size from 160 to 200 acres. Well spacing rules provide for 440 feet from lease lines and 880 feet between wells.

DRILLING

Derricks:

The 5,000-foot drilling is done with 122- and 126-foot derricks mounted on 8 by 24-foot steel substructures.

Type drilling equipment:

Two wells have been drilled with steam rigs, but at present only Diesel-powered and gasoline or butane engines are being used. These consist of conventional type drawworks using two 225-hp. engines as the power source for operating the drawworks, rotary table and pump. Both V-belt and the portable type mechanical rigs are employed. The majority of wells are completed with cable tools.

Fuel:

Diesel, gasoline and butane engines are being used, with the fuel for these rigs being delivered to the location by truck.

Size of hole and casing program:

Most operators have adopted the following procedure: Drill a 13-inch hole to 400 feet and set 10¾-inch surface casing with 50 sacks of cement. An 8¾-inch hole is then drilled to the casing point where 7-inch is set at about 4,700 feet and set with 250 sacks of cement. A 6½-inch hole is then carried to total depth. Operators have found that if more than 250 sacks of cement are used to set the 7-inch, most of it will be lost to the salt section.

Type bits and stems:

About 25 bits are required per well; a rock bit being used to drill to the surface casing point at around 500 feet, drag bits to around 1,800 feet and then rock bits to total depth. Most operators use a single 30-foot drill collar, but some use three or four with a total length of 90 to 120 feet.

Tubing used:

Operators vary in their use of 2 and 2½-inch tubing.

PRODUCTION PRACTICES

Methods of producing oil:

Two edge wells are equipped for pumping, but the other 13 wells are all produced by stopcocking with an average gas-oil ratio of about 600 cu. ft. per barrel. As large as possible choke is used with minimum gas-oil ratio to flow the wells' allowables over a 24-hour period. Bottom-hole pressures are relatively low for wells of this depth, original bottom-hole pressure being 1,800 pounds, at a datum of —1,500 feet, so that the flowing life of the field is questionable. Gas is believed to be the main driving energy, thus also pointing to a short flowing life. Heavy-duty pumping equipment will be required, and due to depth and wide spacing of wells, central powers and backside cranking probably will be impractical.

Separators and tankage:

One operator is using central tank battery and separator, but due to the field being in its first stage of development most wells are individually equipped. However, future development will bring about installation of central batteries.

Water conditions:

Bottom-hole water in very small quantities is being produced in one of the edge well pumpers, but the field is expected to be relatively free of water troubles.

Shooting and acidizing:

So far general practice is not to shoot wells but to acidize in two or three stages. Usual loads are 1,500 and 3,000 gallons if two-stage acid treatment is used; if a third treatment is used around 5,500 more gallons are added.

GENERAL DATA

Pipe line outlets:

As yet no pipe line has been laid to the field, but it is expected that construction of a 35-mile line to Levelland will be started this month. The line is to be laid by Plains Pipe Line Corp., and an affiliated company (Motor Fuels Corp.) is to build a 3,000-bbl. plant at Levelland.

Crude oil analysis:

Slaughter crude is a typical West Texas sour crude with an average A.P.I. gravity of 31 to 34 degrees. An approximate summary of a typical Slaughter crude oil is as follows:

Gravity, A.P.I.	31.1
Sulfur, per cent	2.06
B.s.&w., per cent	.2
Pourpoint	Below 0
Gasoline: Per cent	33.0
Gravity, A.P.I.	53.7
Color, Saybolt	30
Distillation:	(°F.)
I.B.P.	123
10 per cent	176
20 per cent	199
30 per cent	218
50 per cent	257
70 per cent	300
90 per cent	358
Endpoint	396
Recovery, per cent	98
Octane number, L-3	54.3
Flash, Tag CC, °F.	...
Sulfur, per cent	0.20
Gas oil: Per cent	20.4
Gravity, A.P.I.	28.5
Color, N.P.A.	4
Distillation:	(°F.)
I.B.P.	506
10 per cent	572
20 per cent	588
30 per cent	596
50 per cent	618
70 per cent	652
90 per cent	719
Endpoint	744
Flash, °F.	285
Fire, °F.	340
Pourpoint, °F.	50
Sulfur, per cent	1.0
Kerosene dist.: Per cent	13.0
Gravity, A.P.I.	38.4
Color, Saybolt	14.0
Distillation:	(°F.)
I.B.P.	330
10 per cent	432
20 per cent	439
30 per cent	445
50 per cent	454
70 per cent	468
90 per cent	487
Endpoint	513
Recovery, per cent	99
Octane number, L-3	...
Flash, Tag CC, °F.	120
Sulfur, per cent	.84
Topped crude: Per cent	32.6
Gravity, A.P.I.	12.6
Color, N.P.A.	Black
B.s.&w., per cent	0.1
Furol vis. at 122	495
Flash, °F.	415
Fire, °F.	470
Pourpoint, °F.	55
Sulfur, per cent	2.91

Method of determining potential:

Following the establishment of field rules, method of determining potential is by an open-flow test for six hours. The 24-hour potential is determined by multiplying the six-hour flow by four.

Present owners of producing leases:

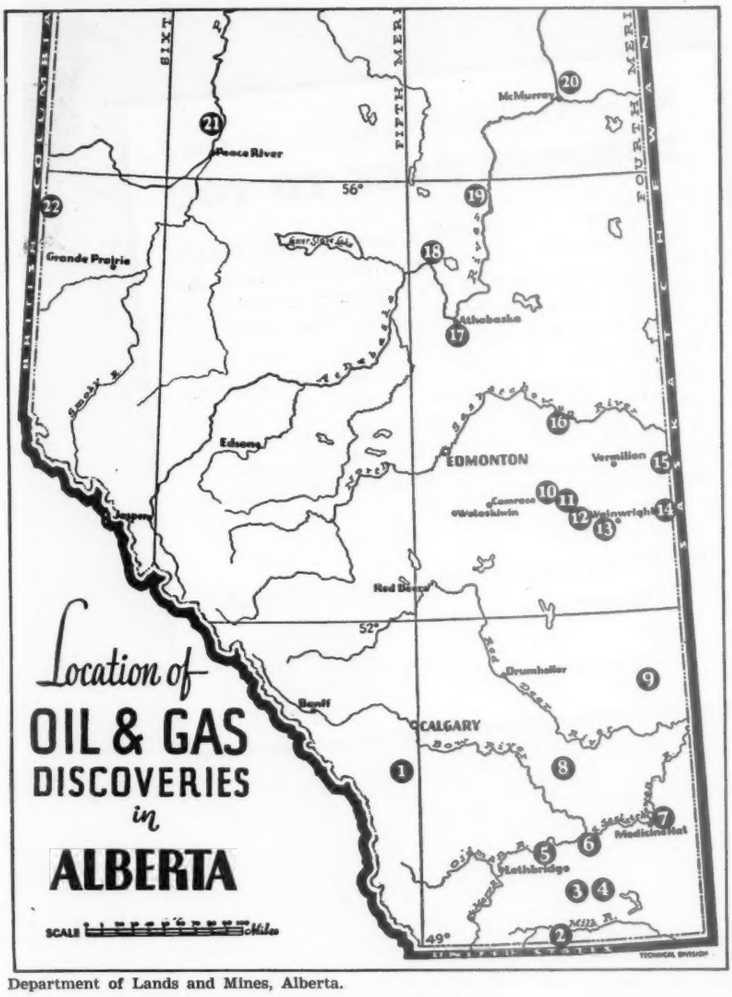
The following companies now have producing wells at Slaughter: Gulf Oil Corp., Honolulu Oil Corp., Murchison & Closuit, Richardson Oil, Inc., Stanolind Oil & Gas Co., and Texas Co.

Owners of undeveloped acreage:

In addition to the above list, the following companies hold acreage near proven production: Magnolia Petroleum Co., Skelly Oil Co., Tide Water Associated Oil Co., Bond Oil Corp., and others. Much of the field's present area is on the Slaughter ranch, and most of the other acreage is held in large blocks, thus simplifying the field's development from the problem of small leases.

Keep the dollars you've invested
PUMPING BACK TO YOU
You owe it to yourself to get the best possible returns on your pumping unit dollar, because the total investment it must pay back to you, with dividends, is never short of big figures. We believe you should make thorough comparisons . investigate design, quality of materials, construction, dependability of the manufacturer . . . then select a unit which has been proven through years of service to deliver the utmost in economy and performance. In other words be sure to **keep the dollars you've invested pumping back to you.**
THE PARKERSBURG RIG & REEL COMPANY
PARKERSBURG, W. VA.
DALLAS - HOUSTON - TULSA
LOS ANGELES - NEW YORK
D-3-39
PARKERSBURG RIG AND REEL CO.

Spectacular Despite



Department of Lands and Mines, Alberta.

KEY TO MAP

1. **Turner Valley.** Producing oil and gas.
2. **Red Coulee.** Producing light crude.
3. **Skiff.** Heavy crude oil. Not producing.
4. **Foremost.** Gas field-reserve.
5. **Barnwell.** Small gas field.
6. **Bow Island.** Gas field repressured from Turner Valley.
7. **Medicine Hat.** Gas field supplies city.
8. **Brooks.** Small gas field supplies town.
9. **Oyen.** Showings of heavy oil.
10. **Viking.** Gas field supplies Edmonton.
11. **Kinsella.** Proven gas field not yet in use.
12. **Fabyan.** Two wells supply Wainwright.
13. **Wainwright.** Producing heavy crude.
14. **Dina.** One oil well and others drilling.
15. **Lloydminster.** Gas produced on Saskatchewan side.
16. **Duvernay.** Gas discovery may prove field.
17. **Athabaska.** Heavy oil discovered.
18. **Smith.** Gas discovered, not developed.
19. **Pelican.** Gas discovered.
20. **McMurray.** Deposit of tar sands.
21. **Peace River.** Heavy oil, not developed.
22. **Pouce Coupe.** Gas discovered.

By J. L. IRWIN

Statistician, Department of Lands and Mines, Government of the Province of Alberta

It was stated a year ago that in the world history of oil and its development at the close of 1938 it would be indeed interesting to see the place which would be accorded to Alberta. That statement is now justified.

The province's oil activities and development during the year have been unquestionably spectacular in spite of the drastic proration of wells, which was enforced to hold the ever increasing production down to a seasonable and localized market. The production total for the year was 6,742,039 bbls.

This total—257,961 bbls. short of the general prediction that Alberta would reach 7,000,000—compares rather strikingly, however, with that of 2,796,908 bbls. for 1937 and with 1,320,442 for 1936. The seven million figure would have been passed easily for 1938 but for the additional and heavy proration of wells, levied in the last three months of the year as a result of the usual seasonal drop in local demand.

A production increase over 1937 of approximately 4,000,000 bbls must be regarded as a most satisfactory report of Alberta's progress in 1938 as an oil producing province of world importance.

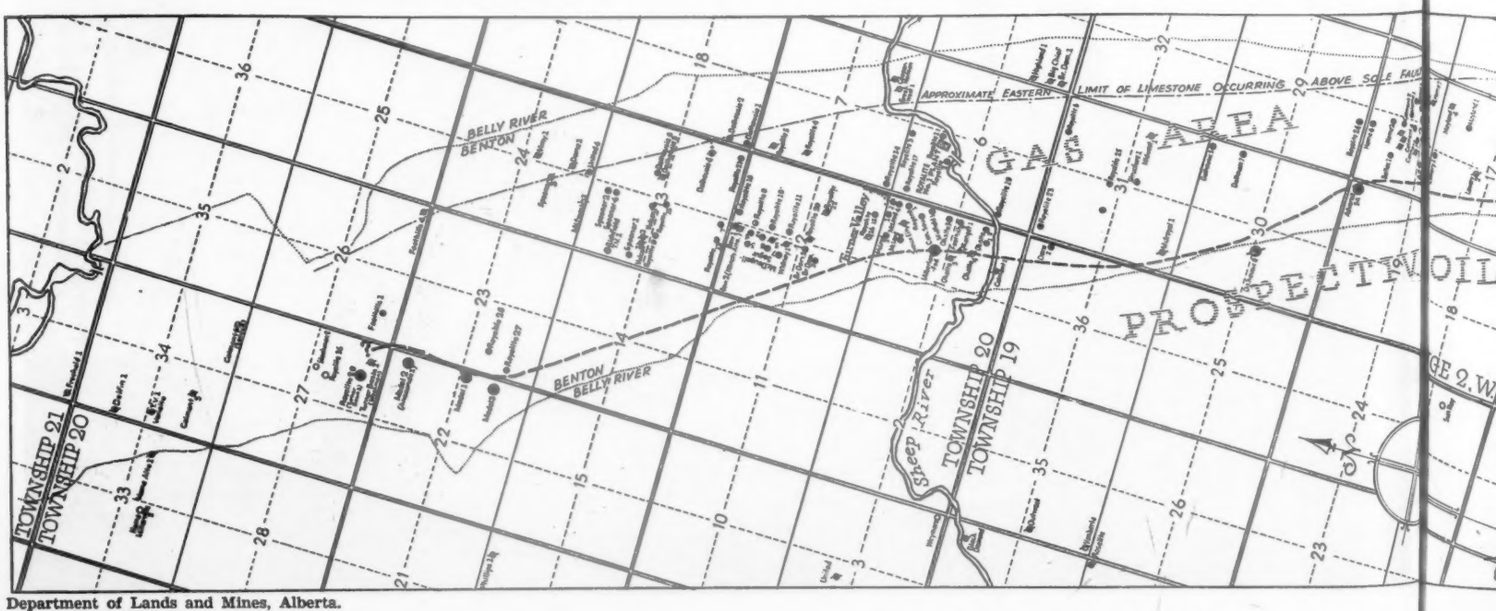
History of the Year's Development

The most important event of the year, the bringing in to production of Home (Millarville) No. 2, materialized towards its close. The importance of this event is due to the fact of its isolated position from the proven crude oil zone in southern Turner Valley. Home No. 2 is situated in the extreme north of the field—legal Subdivision 6 of Section 33, Township 20, Range 3, west of the fifth meridian—which is approximately two miles northwest of Royalite No. 29, the next most northern crude oil producer in Turner Valley.

Striking the upper lime zone at a depth of 8,032 feet, oil of a 40° Beaume gravity was produced in sufficient quantities to prove that a good commercial well had been established. It was decided, however, to continue drilling to the lower porous section of the lime and secure production from both. With this accomplished the well on its first test gave a flush production of 50 bbls. an hour or 1,200 bbls. a day with gas pressure strong and increasing.

Home No. 2 was completed at a depth of 8,495 feet, 15 feet in the Black lime. The upper porous zone was at 8,151 to 8,235 feet and the lower at 8,395 to 8,473 feet, two stray porous horizons having also been discovered between 8,241 and 8,319 feet.

This new well is 17 miles to the northwest of the proven crude oil zone in the southern end of the valley. Its coming into production as a major crude producer opens a new and extensive area



Department of Lands and Mines, Alberta.

Gain in Alberta Production Drastic Proration Rules

in the northern end and greatly enlarges the whole field. With the addition of this new potential area, negotiations are already under way for the drilling of more wells in the vicinity, the locations of which are to range anywhere from two to six miles to the northwest of Home No. 2.

The development of Okalta No. 6 well has been watched with much interest. While it is too early yet to make a statement regarding the final stages of this development, it may be said, however, that the drilling of this well, in this isolated location to the west, has now defined how far oil extends down the west flank.

At the close of 1938 there were 64 producing crude wells in Turner Valley, compared with only 35 at the end of 1937; 14 others are drilling and there are plans for starting at least 20 more.

Many large producers were completed during the year and flush productions of the biggest ran from 2,000 to over 5,000 bbls. per day.

ALBERTA OIL PRODUCTION—1937 AND 1938

Month	1937 barrels	1938 barrels	Increase barrels
January	127,977	444,196	316,219
February	140,515	401,587	261,072
March	161,832	467,732	305,900
April	172,608	447,241	274,633
May	175,997	546,719	370,722
June	191,634	521,895	330,261
July	226,000	678,243	452,243
August	271,898	799,023	527,125
September	281,154	867,939	586,785
October	325,723	667,454	341,731
November	326,677	427,236	100,559
December	394,893	472,774	77,881
Totals	2,796,908	6,742,039	

Increase, 1938 over 1937, 3,945,131 bbls.

Another table, which shows Alberta's oil production by calendar years from 1914 to date and which gives a comprehensive picture of the province's development in this industry for the past 24 years, appears as follows:

ALBERTA OIL PRODUCTION BY CALENDAR YEARS

Calendar Year	Barrels
1914 to 1924	96,504
1925	168,643
1926	219,598
1927	332,133
1928	489,531
1929	999,152
1930	1,433,844
1931	1,455,195
1932	917,622
1933	1,013,040
1934	1,265,940
1935	1,263,750
1936	1,320,442
1937	2,796,908
1938	6,742,039
Total Alberta oil production from 1914 to 1938	20,514,341

Conservation

During 1938 a definite step was taken with regard to conservation, which would put a stop at last to the deplorable wastage of gas with the field's resultant loss of pressure and which as a result would ensure an orderly development of oil.

This measure fills a long felt want in its offer of protection to the life of the field. With the regulating and conserving of production on such a basis a new confidence would be established in the permanence of this industry which is proving of such vital importance to both the province and the Dominion.

With this in view the Petroleum and Natural Gas Conservation Board was formed during the year and opened its offices in July with Calgary as its headquarters and with a field office in Turner Valley.

The personnel of the board is as follows: W. F. Knode, well-known Texas consulting engineer and conservation expert, highly recommended to the Alberta Government by the United States Bureau of Mines, was appointed chairman. Other members are C. W. Dingman, late director of the Petroleum and Gas Division of the Department of Lands and Mines, and F. G. Cottle, C. A., late auditor of the Board of Public Utility Commissioners of the Alberta Government.

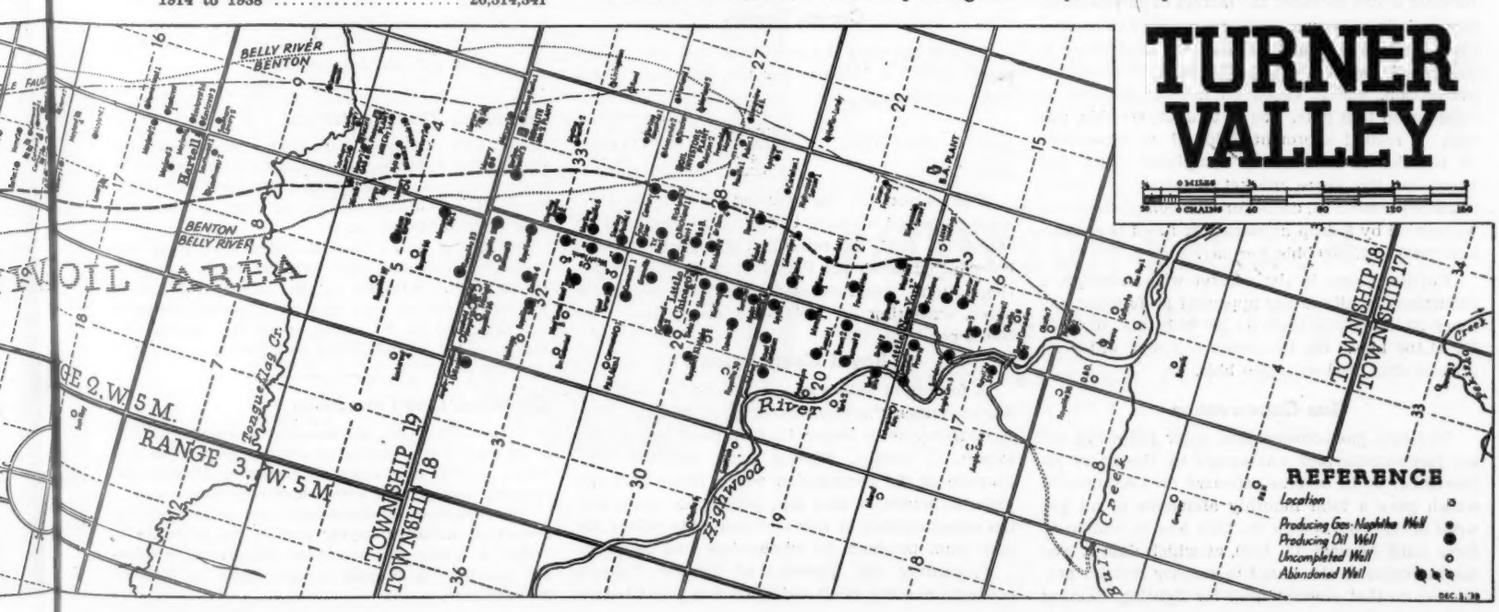
On November 22, 1938, an act was promulgated on the authority of which the board now functions. The title to this legislation is, "An Act for the Conservation of the Oil and Gas Resources of the Province of Alberta." A brief summary of the act follows:

The first section opens with the constitution of the board which is to be limited to three members of whom one shall be chairman. With reference to the personnel, already named, W. F. Knode, the chairman, is to hold office until June 30, 1939, and thereafter during the pleasure of the lieutenant governor in council. F. G. Cottle, C. A. and C. W. Dingman, the other two members, are to hold office until June 30, 1943, and, subsequent to that date, during the pleasure of the lieutenant governor in council. Should a vacancy in the membership of the board occur at any time, such vacancy is to be filled by an appointment to be made by the lieutenant-governor in council, the appointee to hold office for a period of five years with a possible extension to this period being sanctioned.

Authorization for the control and regulation of petroleum is laid down, the control to be effected either by restriction or prohibition or both with the repressuring of any field which may be deemed necessary.

Within six months of the date upon which the act comes into force, the preparation of a scheme or schemes for the provision of compensation for persons who may be injured by conservation orders is to be arranged. For the payment of such compensation the board is to levy the amount thereof by means of a uniform rate on the dollar upon the assessed value of all the petroleum property of the persons who are liable under the scheme for the payment of such compensation.

Owners of producing wells or those in ownership or control of refineries shall keep all records of petroleum produced or received at refineries,



giving the disposition of same with details as to quantity, quality and prices payable.

Steps may be taken and persons employed, if considered necessary, for the enforcement of any order which is made, and, for the purposes thereof, seizure and possession of movable or immovable property in or about any well, together with the books and offices of the owner. Until such order has been complied with, production may be discontinued or the board may take over management and control of same.

With reference to investigation or procedure of such a nature, any representative of the board shall have the powers which may be conferred upon a commissioner appointed pursuant to "The Public Inquiries Act" for the purpose of taking evidence and for compelling the attendance of witnesses and the production of documents.

Control Drilling Operations

On January 11, 1939, Order in Council No. 45-39 came into force, by which drilling of wells should come under the control of the board. Prior to this date the board was in charge only of production, the responsibility for all drilling operations being assigned to the minister. As a result of this order applications for drilling permits were in future to be made out to the board instead of, as formerly, to the department.

With the rapid growth of Alberta's oil production in 1937, coupled with the limitations of a localized market, the refineries introduced the measure of proration which became effective for the first time on September 12, 1937, when the purchase of production was limited by them to 65 per cent of the capacity of wells.

Towards the end of April with proration varying from time to time it was decided that new tests should be made on an 11-day basis, a well to run for 10 days on the proration previously established and on the eleventh day on open-flow production. The new potential by which proration was to be calculated was to be two-thirds of open flow as demonstrated on the eleventh day. This proration varied from time to time depending on storage and market conditions and also on transportation facilities during a period when an additional pipe line from the field to Calgary was under construction.

With the appointment of the Petroleum and Natural Gas Conservation Board in 1938 the total quantity of permitted oil production was distributed amongst crude producers by application of a formula which included the factors of gas/oil ratio, bottom-hole pressure, well spacing and measured flow through a 2-inch nipple. On September 2, the board issued its first allotment of allowable production, which, based on market demand as existent on that date, was to total 28,000 bbls. per day. A second allotment followed on September 12 to take care of newly completed wells, but based on the same market demand. A third, made September 24, cared for new completions but influenced by a drop in market reduced the allowable total to 22,000 bbls. per day.

Further drops in the market with consequent reductions in allowables appeared as follows: October 20, allowable total, 14,500 bbls. and October 28, 11,500 bbls. On December 5 a new order increased this total to 12,500 bbls.

Gas Conservation

The first gas conservation order following the act just summarized was issued by the board on November 30 to become effective on December 7, which gave a total monthly allowable of all gas wells of 3,240,687,000 cu. ft. This was to remain in force until January 15, 1939, at which date it was the intention of the board to further restrict production to that amount used for lighting, heating and the generation of power, together with any further amount which is returned to the earth in such manner as may be approved by the board. On January 10, 1939, a further order was issued which struck out the words and figures reading "until the 15th day of January, 1939," substituting in their place "until further order."

For the purpose of the order the expression "gas well" means any well at which the rate of production of oil in liquid form produced and recovered at the well head does not exceed 35 gallons of oil for 31,000 cu. ft. of gas.

Other Alberta Fields

In addition to the encouraging record established by the Turner Valley field during 1938, is that of other oil areas throughout the province. Some have already developed production, whilst others, with the drilling of most interesting tests, hope to reach the same goal.

The Ribstone area, 30 miles southeast of Wainwright, is carrying out an interesting test and at a depth of approximately 2,000 feet oil occurrences have come into evidence. North Taber Royalties No. 1 well, 30 miles east of Lethbridge, also is attracting attention. The drilling test in this area has passed a number of gas sands which have proved encouraging.

The Ram River well, approximately 100 miles west of Red Deer, was spudded in on October 24, and by January 16 had reached a depth of over 700 feet. The Devonian limestone was encountered at the 70-foot level when casing was set. At 300 feet came the first evidence of gas, and a core sample, taken from the 400-foot level, showed a noticeable impregnation of oil, the cores at greater depth showing increased evidence of oil together with porosity. The test is being watched with the greatest of interest.

Development work in other fields throughout the province includes the Altoba well on the Clearwater River, 20 miles to the southeast of the Ram River well; the Pouce Coupe wells near the Alberta-British Columbia boundary in the Peace River country; the Home-Brazeau well in the Brazeau area; the tests at Lloydminster on the Saskatchewar border; the test at Steveville, 70 miles northwest of Medicine Hat; Moose Dome, 30 miles west of Calgary; two wells near Lundbreck in the Crowsnest Pass area; the tests at Castle River and Savannah Creek in the southwest of the province; and Milk River and Del Bonita in the international boundary area.

Crown Leases

Crown leases of the petroleum and natural gas rights active in Alberta for the last three years were as follows:

Year—	Number	Area covered, acres
1936	3,838	630,148.35
1937	6,466	971,312.48
1938	5,261	1,053,297.39

The reason for the reduced number in 1938, with increased acreage, is due to the fact that on March 30, 1937, the minimum area, which could be acquired under the Petroleum and Natural Gas Regulations, was increased from 40 acres to 160 acres, excepting on isolated areas of less than 160 acres.

Royal Commission

A feature of 1938 was a Royal Commission conducted under the chairmanship of Justice A. A. McGillivray with Major L. R. Lipsett, marketing expert, of Ardley, Alberta, as a member. The purpose of the commission was a probe into the price structure of fuel oils, production costs and the consideration of fair and equitable prices for petroleum products to wholesalers and retailers.

Regarding the question of Turner Valley's potential reserve of oil, evidence was given before the commission by the following experts: Dr. T. A. Link, Imperial Oil geologist; Dr. B. B. Boatright and Alex. Deussen of Houston, Tex.; and Stanley Gill and S. F. Shaw of San Antonio, Tex.

Estimates were made either by the porosity method of calculation of the reserves or by the method of "decline curve."

The average figure submitted by the experts regarding the life of Turner Valley was about 31 years with a reserve of approximately 200,000,000 bbls. of oil. In the opinion of at least two of them, these figures, on the basis of reasonable conservation and orderly development, were given as an absolute minimum.

Reduced Freight Rates

With reference to the ever-present question of market expansion, a deputation consisting of Herbert Greenfield, M. M. Porter and Alfred Chard has been appointed for a visit to eastern Canada. Discussions are to be opened with the railways, government and refineries with a view to seeking lower freight rates on 6,000 bbls. a day of Turner Valley crude for the British American Oil Co. refinery at Toronto and Imperial Oil Co. refinery at Sarnia.

A successful conclusion of this effort will mean a great deal to the Alberta oil industry. With the rapidly increasing growth of production in the province it is imperative that additional markets must become established. Pending a decision on this now all-important question, allowable production must of necessity continue to be held down to a seasonal and localized market.

Additional Tankage Planned For Turner Valley Crude

CALGARY, Alberta.—To stabilize crude production in Turner Valley, plans have been presented by the Alberta Petroleum Association to the conservation board for construction of additional tankage. The plan, sponsored by major operators, would permit wells to produce in excess of market requirements in off-peak seasons, and surplus production being run into storage by purchasers and utilized during the rush marketing periods. This would, it is claimed, avoid fluctuations in proration and a heavier pull on wells at certain seasons.

Approximately 500,000 bbls. additional tankage is under construction or planned at present. British American Oil Co. will erect 340,000 bbls. storage at its East Calgary refinery, now under construction, while Anglo-Canadian Oil Co. and Gas & Oil Products, Ltd., will erect several new tanks in the field. Royalite Oil Co. will erect a 20,000-bbl. tank for gasoline storage at the Calgary terminal of its pipe line system, this being part of a $263,000 program for extension of pipe line and storage systems.

Canadian Gas Production

OTTAWA, Ontario.—Natural gas production from all Canadian fields in 1938 totaled 33,159,466,000 cu. ft. against 32,380,991,000 cu. ft. in 1937. December output increased to 4,056,990,000 cu. ft. from a November total of 3,354,385,000 cu. ft.

Imports of mixed (natural and artificial) gas into Canada in December were 8,279,000 cu. ft. valued at $5,874 against 8,124,000 cu. ft. valued at $4,885 in November. For the year 1938 these imports amounted to 133,062,000 cu. ft. valued at $87,311 against 114,275,000 cu. ft. valued at $74,799 in 1937.

Canadian Gas Franchises

Franco Oils, Ltd., is preparing to resume drilling of its No. 1 well, standing at about 2,500 feet, to provide a natural gas supply for Cardston, Alberta. The company was granted a franchise some years ago.

The Saskatoon, Saskatchewan, city council has approved an exclusive 20-year natural gas franchise to Walter F. Thorn and associates. The Thorn interests are planning to develop a gas supply in western Saskatchewan.

DRILLING PROTECTION

for 1/2¢ per ft.

In drilling through hard formation, most of which was rock bit digging, a certain oil company drilled 8,924 feet in 77 days.

Patterson-Ballagh Protectors were used in this well and upon inspection show practically no wear or reduction in diameter and are good for at least four additional wells. (Note photo.)

Therefore, this string of Protectors on five wells, under similar drilling conditions, will give service for 44,000 feet. The complete string of Protectors cost $218.40. Consequently, the cost per foot drilled will be less than 1/2c.

Surely your well is entitled to protection at 1/2c per foot. The savings earned in time and equipment more than pay for the Protectors. Profit by this insurance in the drilling of your next well.

Made from The World's TOUGHEST Rubber

Actual unretouched photo of one of the "most worn" Protectors after drilling 9,000-foot well. Less than 1/8" loss in diameter.

PATTERSON-BALLAGH

***All Rubber* PROTECTORS**

PATTERSON-BALLAGH CORPORATION

Plant and General Offices: 1900 E. 65th St., Los Angeles, Calif.
Mid-Continent Office: 1506 Maury St., Houston, Texas
New York Office: 39 Cortlandt St., New York City

GULF PORT SHIPMENTS LESS, EXPORTS MORE

By Neil Williams

HOUSTON, Tex., Feb. 27.—Although exports broke all records, total movement of oil from Gulf Coast ports fell off slightly the past year, according to complete terminal reports just compiled. Increases in exports, however, were more than offset by a decline in coastwise shipments. The drop in total shipments reflected the drastic curtailment of production effected under proration in fields of Texas and parts of the Mid-Continent.

Shipments during the first six months were published on Pages 16-17 of The Oil and Gas Journal, September 1, 1938. Shipments represent total oil all companies handled over respective terminals. Individual company shipments are not indicated.

Oil shipments the past year from Gulf Coast ports, exclusive of intra-Gulf Coast movements, totaled 464,160,798 bbls., which compared with the 499,961,891 bbls. lifted during 1937, represented a decline of 35,801,093 bbls. However, 1937 shipments were the greatest in the history of Gulf Coast ports, and although movements during 1938 fell off, they still were more than in any previous year except 1937.

Exports during the year amounted to 98,209,373 bbls., an increase of 19,180,541 bbls., or approximately 24 per cent, over 1937. Of this amount 56,106,461 bbls. was refined products and 42,102,912 bbls. crude oil. Italy and France were among the larger purchasers of oil from Gulf Coast ports, although a substantial volume went to England or its possessions, with some to the Scandinavian countries, Germany, South American countries, and other scattered foreign destinations.

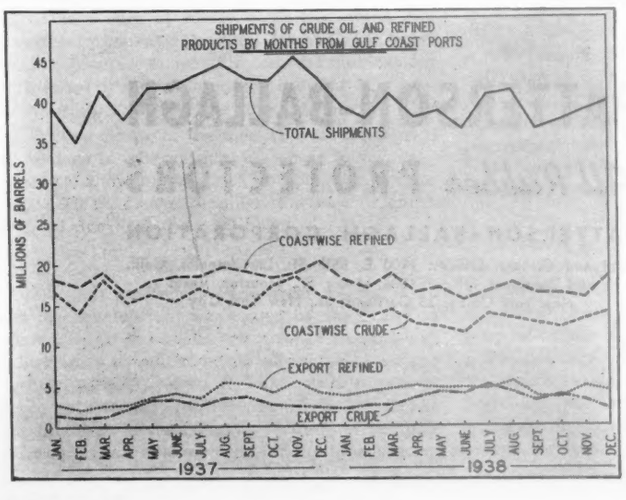
Shipments to other countries have been increasing without interruption each year, having more than doubled within the past two years. July, 1938, with 5,290,955 bbls. of crude shipped and August with 5,691,250 bbls. of refined products, set new records for export movement of these respective materials during any month. Export crude shipments of July were nearly a million and a half barrels greater than the previous monthly peak reached in September, 1937.

The greatest gains in exports were made by Corpus Christi-Harbor Island terminals. This reflects the rapidly growing importance of the Corpus Christi district as an oil shipping center.

Reflecting the expansion in refining in the district in recent years, shipments of refined products more than doubled during 1938. Export shipments of refined products were triple those of 1937. Coastwise movements of refined products from that district also were more than double those of the previous year. As in other port centers, coastwise crude shipments fell off. The decrease in the latter, however, did not entirely offset the increase in movement of refined products and export crude.

Coastwise shipments indicated only those made to destinations out of the Gulf Coast, mainly to the Atlantic seaboard. In addition, large volumes of oil are handled over the respective terminals that have as their immediate destination other Gulf Coast ports. This is particularly true of the Mississippi River and the Corpus Christi districts.

Increased movements of oil out of Gulf Coast ports were indicated at the close of the year. Shipments during December totaled 39,884,430 bbls., an increase of 2,089,287 bbls. over shipments of November, and a gain of 3,374,547 bbls. over October. Export shipments dropped off slightly during December but the substantial upward trend in coastwise movements more than offset that loss. Coastwise shipments of refined products during December were greater than any 1938 month, although 1,491,087 bbls. below December, 1937.



Gulf Port Ship

Districts and terminals—	
SABINE DISTRICT:	
(Beaumont-Port Arthur-Lake Charles)	
Atlantic Pipe Line Co.: Atreco	
Atlantic Refining Co.: Atreco	
Burton Terminal: Lake Charles	
Continental Oil Co.: West Lake	
Gulf Oil Corp.: Port Arthur	
Magnolia Petroleum Co.:	
Beaumont	
Lockport	
Pure Oil Co.: Smith's Bluff	
Shell Petroleum Corp.: Haymark	
Stanolind Crude Oil Purchasing Co.: Beaumont	
Sun Oil Co.: Beaumont	
Texas Co.: Port Arthur	
Union Sulphur Co.: Rose Bluff	
Total	
CORPUS CHRISTI DISTRICT:	
Atlantic Pipe Line Co.: Harbor Island	
General American Terminal.: Corpus Christi	
Humble Oil & Refining Co.: Harbor Island	
Texas Pipe Line Co.: Corpus Christi	
Miscellaneous	
Total Corpus Christi District	
RIO GRANDE VALLEY DISTRICT:	
Valley Pipe Line Co.: Port Isabel	
MISSISSIPPI RIVER DISTRICT:	
Pan American Refining Co.: Destrahan	
Shell Petroleum Corp.: Norco	
Standard Oil Co. (La.): Baton Rouge	
Texas Co.: Amesville	
Miscellaneous	
Total	
HOUSTON-TEXAS CITY DISTRICT:	
American Petroleum Co.: Norsworthy	
Atlantic Pipe Line Co.: Texas City	
Independent Terminal Co.: Texas City	
Humble Oil & Refining Co.:	
Baytown	
Texas City	
Pan American Refining Co., Texas City	
Republic Oil & Refining Co.: Texas City	
Shell Petroleum Corp.: Houston	
Sinclair Refining Co.: Houston	
Texas Co.: Houston	
Miscellaneous Houston terminals	
Miscellaneous Texas City terminals	
Total	
Total coastwise shipments	

*Does not include intracoastal shipments.
†Includes 60,107 bbls. natural gasoline commingled

Districts and terminals—	
SABINE DISTRICT:	
(Beaumont-Port Arthur-Lake Charles)	
Atlantic Refining Co.: Atreco	
Continental Oil Co.: West Lake	
Gulf Oil Corp.: Port Arthur	
Magnolia Petroleum Co.: Beaumont	
Shell Petroleum Corp.: Haymark	
Stanolind Crude Purchasing Co.: Beaumont	
Sun Oil Co.: Beaumont	
Texas Co.: Port Arthur	
Total	
CORPUS CHRISTI DISTRICT:	
Atlantic Pipe Line Co.: Harbor Island	
General American Terminal: Corpus Christi	
Humble Oil & Refining Co.: Harbor Island	
Texas Pipe Line Co.: Corpus Christi	
Miscellaneous	
Total	
MISSISSIPPI RIVER DISTRICT:	
Shell Petroleum Corp.: Norco	
Standard Oil Co. (La.): Baton Rouge	
Texas Co.: Amesville	
Miscellaneous	
Total	
HOUSTON-TEXAS CITY DISTRICT:	
American Petroleum Co.: Norsworthy	
Independent Terminal Co.: Texas City	
Humble Oil & Refining Co.:	
Baytown	
Texas City	
Pan American Refining Co.: Texas City	
Republic Refining Co.: Texas City	
Shell Petroleum Corp.: Houston	
Texas Co.: Houston	
Miscellaneous:	
Houston City	
Texas City	
Total	
Total export shipments	
Total coastwise shipments	
Total shipments	

OIL SHIPMENTS BY MONTHS FROM GULF COAST PORTS DURING 1938

	Coastwise		Export		
Month—	Crude	Refined	Crude	Refined	Total
January	15,125,328	18,063,077	2,288,698	3,957,585	39,434,688
February	13,599,739	17,191,653	2,775,524	4,407,960	37,974,876
March	14,504,494	18,822,193	2,734,161	4,852,400	40,913,248
April	12,699,683	16,543,137	3,677,442	5,027,448	37,947,710
May	12,413,464	17,049,144	4,325,511	4,972,655	38,760,774
June	11,623,520	15,764,773	4,048,177	4,966,070	36,402,540
July	13,970,784	16,770,809	5,290,955	4,736,030	40,768,578
August	13,303,261	17,769,487	4,463,571	5,691,250	41,227,569
September	12,865,074	16,526,433	3,254,143	3,895,709	36,541,359
October	12,214,496	16,547,016	3,887,986	3,860,385	36,509,883
November	13,468,118	15,926,225	3,304,313	5,096,487	37,795,143
December	14,302,840	18,886,677	2,052,431	4,642,482	39,884,430
Total	160,090,801	205,860,624	42,102,912	56,106,461	464,160,798

ments of Crude Oil and Refined Products Last Half of 1938

COASTWISE SHIPMENTS*

July		August		September		October		November		December		Total	
Crude	Refined	Crude	Refined	Crude	Refined	Crude	Refined	Crude	Refined	Crude	Refined	Crude	Refined
1,432,859	.....	1,588,414	.....	1,001,975	.....	1,308,034	.....	1,234,599	.....	†1,591,626	.....	8,157,507	.....
.....	263,341	.....	181,602	.....	.....	.....	369,257	.....	468,230	.....	263,396	.....	1,545,826
163,531	.....	285,964	.....	158,851	.....	.....	.....	181,969	.....	160,906	.....	951,221	.....
160,895	.....	317,691	.....	410,707	.....	159,087	.....	400,786	.....	487,290	.....	1,936,456	.....
636,912	2,510,706	412,176	2,599,686	500,959	2,928,898	405,351	2,512,649	506,617	3,092,356	357,839	2,884,737	2,819,854	16,529,032
855,119	1,850,216	952,750	2,065,914	920,393	2,059,941	742,675	.....	513,537	.....	1,209,947	.....	5,194,421	5,976,071
225,145	.....	96,760	.....	180,269	.....	356,717	.....	436,422	.....	167,631	.....	1,462,944	.....
.....	1,094,864	.....	1,219,023	.....	910,175	.....	1,267,166	.....	1,059,558	.....	1,260,872	.....	6,811,663
.....	.....	.....	.....	79,353	.....	73,947	.....	71,545	.....	.....	.....	224,845	.....
350,717	.....	384,491	.....	386,486	.....	130,060	.....	257,368	.....	407,302	.....	1,916,424	.....
1,186,502	.....	1,318,123	.....	1,508,099	.....	1,328,534	.....	1,420,504	.....	1,845,989	.....	8,607,751	.....
1,242,866	2,810,092	1,036,288	2,721,040	932,835	2,464,810	1,446,515	3,003,655	803,907	2,735,839	269,639	3,476,410	5,732,050	17,211,846
204,244	.....	365,104	.....	.....	.....	172,255	.....	81,226	.....	80,528	.....	903,357	.....
6,458,790	8,529,224	6,757,761	8,787,265	6,079,927	8,363,824	6,123,175	7,152,727	5,908,480	7,355,983	6,578,697	7,885,415	37,906,830	48,074,438
.....	566,448	.....	504,289	.....	477,005	.....	408,108	.....	598,776	.....	572,726	.....	3,127,352
.....	437,544	72,964	378,423	53,179	476,295	185,572	743,350	260,983	396,342	665,190	676,079	1,237,888	3,108,033
2,561,047	.....	2,372,755	.....	2,405,238	.....	1,883,527	.....	2,630,936	.....	2,437,377	.....	14,290,880	.....
177,416	.....	148,908	.....	148,816	.....	87,289	.....	387,614	.....	204,810	.....	1,154,853	.....
443,770	201,861	282,830	390,632	75,714	.....	.....	.....	.....	164,201	.....	120,359	802,314	877,053
3,748,681	639,405	3,381,746	769,055	3,159,952	476,295	2,564,496	743,350	3,878,309	560,543	3,880,103	796,438	20,613,287	3,985,086
.....	.....	.....	95,326	58,449	.....	.....	20,591	126,611	.....	.....	.....	185,060	136,428
.....	137,995	.....	.....	67,000	.....	142,496	.....	.....	.....	136,827	.....	484,318	.....
.....	20,337	.....	9,834	.....	127,437	.....	156,734	.....	63,731	.....	264,528	.....	641,701
366,927	914,905	335,918	1,086,944	477,696	981,522	625,469	1,188,026	460,888	1,096,554	630,604	1,352,230	2,897,502	6,620,181
529,114	.....	76,313	.....	153,105	.....	158,073	.....	233,209	.....	350,572	.....	1,500,386	.....
.....	.....	81,266	.....	78,929	.....	.....	.....	79,046	.....	127,863	.....	367,104	.....
1,034,036	935,242	493,497	1,095,878	776,730	1,108,959	926,038	1,344,760	773,143	1,160,285	1,245,866	1,616,758	5,249,310	7,261,882
.....	.....	.....	.....	153,067	.....	183,403	.....	92,429	.....	75,604	.....	504,503	.....
147,462	2,386	201,547	2,372	276,692	2,384	146,377	.....	215,995	4,797	142,888	3,516	1,130,961	15,455
.....	135,000	.....	140,900	.....	130,000	.....	120,000	.....	156,000	.....	246,000	.....	927,900
.....	1,246,533	.....	3,368,994	.....	2,356,819	.....	3,214,993	.....	3,023,198	.....	3,998,398	.....	18,208,935
494,111	.....	351,106	.....	109,255	.....	266,565	.....	421,190	.....	215,177	.....	1,857,404	.....
108,394	2,229,593	.....	1,733,379	88,000	1,999,079	.....	2,101,628	.....	1,914,575	.....	2,154,614	196,394	12,132,868
.....	283,000	.....	357,600	.....	348,000	.....	219,300	.....	162,000	.....	429,000	.....	1,798,900
.....	1,749,915	.....	1,418,718	.....	1,741,073	.....	1,629,667	42,734	1,588,844	.....	1,756,538	42,734	9,884,755
1,217,006	.....	1,154,158	.....	1,345,772	.....	1,260,009	.....	1,147,269	.....	1,400,530	.....	7,524,834	.....
532,863	.....	533,713	.....	603,720	.....	564,580	.....	783,310	.....	485,355	.....	3,503,541	.....
85,522	.....	174,442	.....	108,470	.....	179,763	.....	50,353	.....	218,201	.....	816,751	.....
143,919	.....	255,291	.....	105,040	.....	.....	.....	28,295	.....	60,419	.....	592,964	.....
2,729,277	6,646,427	2,670,257	7,021,963	2,790,016	6,577,355	2,600,787	7,285,588	2,781,575	6,849,414	2,598,174	8,588,066	16,170,086	42,968,813
13,970,784	16,770,809	13,303,261	17,769,487	12,865,074	16,526,433	2,214,496	16,547,016	13,468,118	15,926,225	14,320,840	18,886,677	80,124,573	102,426,647

with the crude.

EXPORT SHIPMENTS

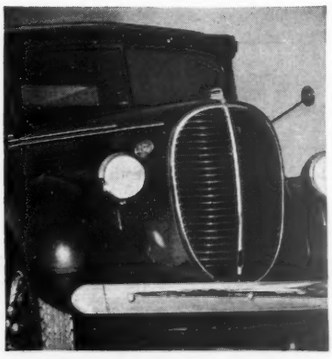
July		August		September		October		November		December		Total	
Crude	Refined	Crude	Refined	Crude	Refined	Crude	Refined	Crude	Refined	Crude	Refined	Crude	Refined
.....	300,066	.....	227,917	.....	.....	.....	73,650	.....	203,095	.....	204,517	.....	1,009,245
.....	.....	.....	.....	71,666	.....	88,122	.....	.....	.....	165,473	.....	325,261	.....
.....	478,395	.....	427,717	.....	139,346	.....	380,160	.....	463,163	.....	286,044	.....	2,174,825
.....	.....	70,465	.....	240,162	.....	273,286	.....	67,271	.....	190,629	.....	841,813	.....
91,486	.....	91,161	.....	90,982	.....	269,536	.....	177,803	.....	.....	.....	720,968	.....
175,290	.....	442,008	.....	.....	.....	484,566	.....	231,543	.....	.....	.....	1,333,407	.....
58,157	.....	55,985	.....	54,403	.....	.....	.....	.....	.....	.....	.....	168,545	.....
931,030	808,327	540,444	1,190,968	915,788	900,917	905,579	900,458	1,151,704	1,223,777	482,937	873,665	4,927,482	5,898,112
1,255,963	1,586,788	1,200,063	1,846,602	1,373,001	1,040,263	2,021,089	1,354,268	1,628,321	1,890,035	839,039	1,364,226	8,317,476	9,082,182
194,530	.....	264,718	.....	91,381	.....	343,294	.....	31,717	.....	72,374	.....	998,014	.....
546,673	257,170	463,376	613,533	377,352	352,279	583,279	348,259	563,712	466,686	789,971	694,127	3,324,363	2,732,054
72,105	.....	.....	.....	25,340	.....	71,592	.....	.....	.....	.....	.....	169,037	.....
404,967	.....	422,770	.....	502,464	.....	255,105	.....	202,697	.....	136,294	.....	1,924,297	.....
1,118,860	600,634	825,250	556,607	.....	.....	.....	30,194	17,980	2,213	.....	44,395	1,962,090	1,234,043
2,337,135	857,804	1,976,114	1,170,140	996,537	352,279	1,253,270	378,453	816,106	468,899	998,639	738,522	8,377,801	3,966,097
.....	225,635	.....	44,793	.....	157,981	.....	87,932	.....	138,238	.....	100,373	.....	754,952
.....	313,866	.....	618,164	.....	808,260	122,556	472,446	.....	540,910	.....	475,741	122,556	3,229,387
.....	.....	80,138	.....	.....	.....	.....	.....	.....	.....	.....	.....	80,138	.....
.....	.....	.....	.....	.....	.....	83,547	.....	.....	.....	.....	78,500	83,547	78,500
.....	539,501	80,138	662,957	.....	966,241	206,103	560,378	.....	679,148	.....	654,614	286,241	4,062,839
.....	.....	.....	.....	454,021	.....	174,206	.....	253,943	.....	93,422	.....	975,592	.....
.....	189,000	.....	122,515	.....	.....	.....	78,000	.....	87,350	.....	141,000	.....	617,865
.....	954,509	.....	1,089,975	.....	1,178,921	.....	1,173,516	.....	1,558,377	.....	1,348,347	.....	7,303,645
199,606	.....	181,247	.....	73,083	.....	.....	.....	97,899	.....	121,331	.....	673,166	.....
344,000	.....	.....	.....	.....	.....	.....	.....	.....	144,668	.....	.....	344,000	144,668
.....	143,000	.....	210,000	.....	76,849	.....	36,000	.....	130,120	.....	100,000	.....	695,969
183,613	156,453	275,222	589,061	182,789	281,156	.....	279,770	.....	137,860	.....	256,312	641,624	1,700,642
210,112	.....	184,434	.....	35,053	.....	.....	.....	54,658	.....	.....	.....	484,257	.....
316,058	.....	103,526	.....	93,977	.....	139,282	.....	453,386	.....	.....	.....	1,106,229	.....
444,468	308,975	462,827	.....	45,682	.....	94,036	.....	.....	.....	.....	39,461	1,047,013	348,436
1,697,857	1,751,937	1,207,256	2,011,551	884,605	1,536,926	407,524	1,567,286	859,886	2,058,405	214,753	1,885,120	5,271,881	10,811,225
5,290,955	4,736,030	4,463,571	5,691,250	3,254,143	3,895,709	3,887,986	3,860,385	3,304,313	5,096,487	2,052,431	4,642,482	22,253,399	27,922,343
13,970,784	16,770,809	13,303,261	17,769,487	12,865,074	16,526,433	12,214,496	16,547,016	13,468,118	15,926,225	14,320,840	18,886,677	80,124,573	102,426,647
19,261,739	21,508,839	17,766,832	23,460,737	16,119,217	20,422,142	16,102,482	20,407,401	16,772,431	21,022,712	16,373,271	23,529,159	102,377,972	130,349,990

Oil Shipments From Gulf Coast Ports by Years for Past Five Years

Year—	Coastwise			Export			Total crude	Total refined	Total shipments
	Crude	Refined	Total	Crude	Refined	Total			
1938	160,090,801	205,860,624	365,951,425	42,102,912	56,106,461	98,209,373	202,193,713	261,967,085	464,160,798
1937	196,010,142	224,922,917	420,933,059	31,478,619	47,550,213	79,028,832	227,488,761	272,473,130	499,961,891
1936	160,827,697	210,560,642	371,388,339	16,884,257	28,870,220	45,754,477	177,711,954	239,430,862	417,142,816
1935	142,869,922	165,888,671	308,758,593	16,385,396	26,660,657	43,046,053	159,255,318	192,549,328	351,804,646
1934	138,466,376	140,770,709	279,237,085	14,916,983	26,497,994	41,414,977	153,383,359	167,268,703	320,652,062

"And what, my good man, is a ring gear thrust plate?"

It's no wonder the duchess doesn't understand. She doesn't drive a truck. But when we mention a ring gear thrust plate to you, we're talking a truck man's language. You recognize it as evidence of the care and study behind Ford rear axle design. And there's a lot more evidence of quality building in every Ford Truck—such features as the V-8 engine, straddle-mounted pinion, needle roller bearing universals, and a score of others. They all mean quality—the basis of Ford dependability, economy and long life.



CHECK YOUR TRUCK AGAINST THESE QUALITY FORD FEATURES!

V-8 ENGINES – **95, 85, 60 HP.** – Smooth, dependable, low-cost power. Quality materials and precision workmanship for efficient operation, long life.

SEMI-CENTRIFUGAL CLUTCHES – Non-tiring pedal action. Centrifugal force provides tremendous power-transmitting capacity. Up-keep costs kept at a minimum.

STURDY TROUBLE-FREE TRANSMISSIONS – Large roller and ball bearings for all forward speeds reduce friction, save power. Oil-hardened chromium-steel gears for long service.

FULL TORQUE-TUBE DRIVES – Springs relieved of driving and braking stresses provide better cushioning of truck and its load. Shackle-bolt wear reduced, spring life prolonged.

RUGGED REAR AXLES – All driving pinions are straddle-mounted to maintain gear-tooth alignment. All truck axles are full-floating, with weight carried on axle housing—none on axle shafts. These features increase dependability and long service, reduce up-keep expense.

BIG POWERFUL HYDRAULIC BRAKES – Equalized braking action for straight stops. Big brake-drum diameters and large lining areas for long brake life and low-cost maintenance.

• *In every detail, the quality of all Ford bodies matches the high quality of Ford chassis. Their exceptional durability means long service with low up-keep cost.*

FORD V·8 TRUCKS *and Commercial Cars*

Ford Motor Company, Builders of Ford V-8 and Mercury Cars, Ford Trucks, Commercial Cars, Station Wagons and Transit Buses

FIELD OPERATIONS

Summarizing the Week's Developments

OKLAHOMA—A gas area was opened in Section 35-18-4e, west of Cushing in Payne County. A wildcat in the Searight area, Seminole County, was estimated good for 600 bbls. of oil in Cromwell sand. Two new wildcats were started in Garvin County, one near city limits of Pauls Valley.

KANSAS—A 6,730-bbl. well was completed in the Hittle pool, Cowley County, and a 2,515-bbl. well was completed in the Edwards pool, Ellsworth County. The discovery well in the North Coralena pool, Section 5-15-13w, Russell County, was completed. The Morel pool in Graham County, and Wherry pool and Cramm pool in Rice County were extended.

NEW MEXICO—A wildcat 3 miles northwest of the Lovington pool in Lea County failed to find pay sand and was abandoned. Ten producing wells were completed in Lea County, and one producer in Eddy County.

MICHIGAN—Allegan, Van Buren, Clare and Kent counties are taking the interest away from older Michigan fields. Eleven out of 18 new oil wells last week were completed in the Bloomingdale field of Van Buren County. The Kent County field, a little west of Grand Rapids, is new and looks very promising.

TEXAS—New producing horizons and field extensions were the main features of news from the Gulf Coast and Southwest Texas districts. Archer County, in North Texas, has a new pool prospect in a 4,300-foot pay 3 miles southwest of the southwest corner of the K.M.A. pool. A 5,000-foot test is being started in Montague County. The production situation in K.M.A. is being eased up by purchasing companies and there is a promise of much less pipe line proration. Eastern Texas wildcatting has resumed in several counties. New pools were opened in Jack and Palo Pinto counties in Central Texas. The Pitzer and West well in Jack County, total depth 4,480 feet, started at the rate of 3,000 bbls. per day after an acid treatment. The Palo Pinto discovery is a shallow pool.

ILLINOIS—With fewer completions and a decline in field work in the state as compared with the early winter time, production continues to increase and establish new peaks almost weekly. A much discussed wildcat in Gallatin County showed salt water in the McClosky lime and may be drilled to the Devonian.

WYOMING—A 1,500,000-cu. ft. gas well drilled a year ago in the Lance Creek field has been converted into a 186-bbl. oil well, producing 2,000,000 cu. ft. of gas.

COLORADO—An important test on the Cottonwood structure in Prowers County, southeastern Colorado, was dry and abandoned in Arbuckle (siliceous) lime at 5,680 feet.

CALIFORNIA—Kern County has two interesting wildcats, one showing oil in the 5,500-foot horizon and the other at 11,525-35 feet. Production of California was down to an average of 607,500 bbls. in the past week.

Completions in All Fields

(Week Ending March 4, 1939)

	Oil	Gas	Dry	Total	1939 total comp. to date	1938 total comp. to date
N. Y., Pa., and W. Va.	50	7	2	59	585	962
Ohio	3	10	3	16	165	185
Indiana	0	0	0	0	23	16
Kentucky	2	2	1	5	95	133
Illinois	58	0	9	67	633	102
Michigan	17	0	7	24	190	135
Kansas	13	0	5	18	195	352
Oklahoma	24	2	9	35	295	318
Texas:						
North Central Texas	32	2	29	63	380	443
West Texas	43	0	5	48	341	427
Texas Panhandle	1	1	0	2	63	141
East Texas	10	0	0	10	155	474
East Central Texas	1	2	1	4	40	75
East Texas Border	1	0	0	1	18	25
Gulf Coast Texas	18	1	1	20	219	220
Southwest Texas	26	3	10	39	372	357
Total Texas	132	9	46	187	1,588	2,162
North Louisiana	6	2	3	11	78	107
Gulf Coast Louisiana	5	0	4	9	117	94
Total Louisiana	11	2	7	20	195	201
Arkansas	4	0	1	5	48	38
Montana	2	0	1	3	22	8
Wyoming	3	0	1	4	20	29
Colorado	0	0	1	1	2	1
New Mexico	12	0	2	14	113	105
Utah	0	0	0	0	0	0
California	11	0	3	14	163	254
Total United States	342	32	98	472	4,332	5,001
Total previous week	267	17	86	370		
Week ending Mar. 5, 1938	376	26	101	503		

Outstanding Fields—Highlights

(Week Ending March 4, 1939)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
K.M.A.	39	46	8	6,776	931	22,100
Wasson-Bennett	8	33	4	2,887	223	12,214
Ector County	7	48	17	18,355	1,599	44,453
Winkler County	1	16	1	401	1,766	36,596
Howard-Glasscock	5	18	5	3,366	1,048	15,897
East Texas	1	11	10	482	26,006	372,648
OKLAHOMA						
St. Louis	4	26	5	1,995	783	27,750
Sac and Fox	4	10	5	639	94	3,050
KANSAS						
Barton County	4	15	1	147	407	10,680
Stafford County	3	14	2	389	251	4,519
Rice County	5	17	1	477	1,274	27,355
Russell County	3	18	3	822	1,203	20,991
NEW MEXICO						
Lea County	10	55	10	1,698	2,033	104,760
LA-ARK-TEX						
Rodessa, La-Ark-Tex	1	5	2	1,080	1,069	64,315
Cotton Valley, La. (deep)	1	11	1	895	115	11,385
Jennings, La.	2	4	1	24	140	27,987
MICHIGAN						
Freeman-Redding	4	21	2	700	65	10,358
Bloomingdale	5	20	11	3,560	.....	14,152
ILLINOIS						
Central Illinois	27	362	58	15,145	2,571	152,772
CALIFORNIA						
Wilmington	4	16	2	1,070	598	83,550
KENTUCKY						
Birk City	2	11	1	150	120	1,486

Illinois and Kentucky

By STAFF CORRESPONDENT

Steady Climb of Production; 2 Big Wells and No Market

MATTOON, Ill., Mar. 6.—Production continues to climb in Illinois notwothstanding that development work is held back by bad weather conditions. The Central Illinois pools in the past week produced an average of 152,772 bbls. per day and the old pools an average of 7,824 bbls. per day, or a total for the state of 160,596 bbls. which is 23,812 bbls. per day more than at the opening of the year.

The past week's report of completions shows 58 new oil wells, nine dry holes and no gas wells, a total of 67 completions. Fayette County had 15 new oil wells, with a total initial production of 3,544 bbls.; Marion County, 31 oil wells, 9,645 bbls. initial production; Clay County, six oil wells, 1,439 bbls. new production; Clinton County, three oil wells, 205 bbls. initial output; St. Clair, one oil well, good for 90 bbls. per day and Wayne County, two oil wells, starting at 222 bbls. One dry hole each was completed in Macon, Cumberland, Wabash, Bond, Wayne and Edwards counties, and three in Fayette.

The much talked of wildcat in Gallatin County, Coats and others No. 1 Green, SW SW SW Section 16-9s-9e, would not produce naturally after the hole had been swabbed. Casing was set at 2,600 feet and the plug drilled cut and salt water appeared with only a trace of oil. The hole may be deepened to the Devonian lime. This well was drilled as a mystery and the sand record may be subject to correction.

No market for the oil in the two big wells in Gibson County, Indiana, has yet been found. The discovery well owned by Fitzpatrick & Hayes was produced for a short time and a small quantity of oil hauled to the railroad station at Griffin, but the freight rate by tank-car to the refinery willing to take the oil was regarded as too high and Fitzpatrick says he will continue to keep the well shut in until he can get more than the present price offered for the oil. Continental Oil Co. is drilling a third test in the area north of the discovery well and if it comes in a good well may change the marketing situation for the new pool. High water in the Wabash River has held back development in both Gibson and Wabash counties.

Following are the completions reported in the past week, the initial production representing 24 hours unless otherwise stated:

Fayette County

In Fayette County, Carter Oil Co. No. 2 C. McClain, NE SW SE Section 32-8n-3e, Bethel sand at 1,552-81 feet, shot with 30 quarts, flowed 612 bbls. through tubing, with 80,000 cu. ft. of gas. Carter No. 3 M. Turey, SW NW SE Section 32-8n-3e, Bethel at 1,536-70 feet, shot with 80 quarts, flowed 420 bbls. through tubing, and 60,000 cu. ft. of gas. Carter No. 2 Turey, NW SE NW Section 32-8n-3e, Bethel at 1,550-81 feet, shot with 60 quarts, flowed 552 bbls. and 70,000 cu. ft. of gas. Jarvis Brothers No. 2 Walker B, SE NE SW Section 31-7n-3e, Weller sand at 1,539-65 feet, pumped 190 bbls. Jarvis No. 7 Homan B, NE SW SE Section 29-7n-3e, Weller at 1,561-83 feet, pumped 150 bbls. R. B. Creager No. 1 J. H. Hiatt, SE NE SW Section 29-7n-3e, Weller at 1,548-62 feet, shot with 40 quarts, pumped 120 bbls. in 12 hours, rated as a 200-bbl. well, with a small showing of water. H. N. Williams and others No. 9 Smith, NW SW NE Section 20-7n-3e, Weller at 1,523-66 feet, pumped 60 bbls. in 10 hours, rated a 125-bbl. well. Dixie Oil Co. No. 1 Sidner, SW cor. SE Section 19-7n-3e, Weller at 1,540-60 feet, shot with 30 quarts, pumped 10 bbls. Carter Oil Co. No. 5 F. Harding, NE SW NW Section 18-7n-3e, Weller at 1,495-1,536 feet, shot with 80 quarts, swabbed 264 bbls. Carter Oil Co. No. 1 H. Logue, SW NW SW Section 8-7n-3e, Bethel at 1,527-38 feet, shot with 20 quarts, swabbed 284 bbs. Carter No. 2 Mable Durbin, NW SE NE Section 8-7n-3e, Weller at 1,403-51 feet, shot with 60 quarts, swabbed 390 bbls. through casing. Carter Oil Co. No. 1 Williams, NE NE SE Section 7-7n-3e, Bethel at 1,555-68 feet, shot with 20 quarts, swabbed 70 bbls. in six hours; casing ripped at 1,529-36 feet, swabbed 67 bbls. in four hours; casing ripped at 1,440-52 feet and 1,462-70 feet, pumped 170 bbls. in 24 hours from three sands, Weller, Stray and Bethel. W. B. Johnson No. 1 Stewart, SE NW NW Section 6-7n-3e, Weller at 1,530-45 feet, pumped 75 bbls. Carter Oil Co. No. 4 M. McClain, NE NE NW Section 4-7n-3e, Weller at 1,503-35 feet and Stray at 1,565-75 feet, shot with 20 quarts in Stray sand, swabbed 128 bbls. Carter No. 2 Hopper, NE NE NW Section 8-7n-3e, Bethel at 1,520-52 feet, shot with 50 quarts, pumped 119 bbls. in 19 hours, rated as 160-bbl. well. Martin and others No. 1 Davis, C SW NE Section 7-5n-1w, a wildcat (formerly reported as Binney and others No. 1 Henston) dry and abandoned at 1,472 feet. Fredonia lime was topped at 1,437 feet. George Parker No. 1 M. Lange, NW cor. SW SW Section 28-5n-2e, a wildcat, Cypress sand topped at 1,810 feet, dry and abandoned at 1,903 feet. Carter Oil Co. No. 1 L. Griffith, SE NE SW Section 30-7n-3e, Weller sand at 1,578-85 feet, total depth, no show of oil, dry and abandoned.

Illinois Fields

HIGHLIGHTS OF THE WEEK: A wildcat in Gallatin County, southeastern Illinois, which had the local industry on edge for a week would not produce from McClosky lime and may be deepened to the Devonian (Niagaran) lime. Gibson County, Indiana's, two good wells are still waiting for a market for their potential production. Another production peak was registered last week in Illinois.

Daily production of new pools, 152,772 bbls.; old pools, 7,824 bbls.; total, 160,596 bbls.

Completed oil wells, 58; operations, including locations, rigs, and drilling wells, 384.

Marion County

Kingwood Oil Co. and Bell No. 1 E. Rogers B, SW SE SE Section 16-2n-2e, top of Fredonia lime at 2,063 feet, perforated with 60 shots at 2,068-98 feet, pumped 138 bbls. by heads. Texas Co. No. 7 E. Gett, NW SE SW Section 16-2n-2e, Benoist sand at 1,809-43 feet, pumped 175 bbls. Texas No. 8 Gett, NE SE SW Section 16-2n-2e, Benoist at 1,809-42 feet pumped 175 bbls. Texas No. 11 E. Gett, SW SW SE Section 16-2n-2e, Benoist at 1,815-45 feet, pumped 23 bbls. in three hours, rated a 160-bbl. well. Texas No. 1 F. Shanafelt, NE SE NW Section 16-2n-2e, Benoist at 1,837-58 feet, pumped 125 bbls. Zephyr Drilling Co. No. 2 G. A. Mercer, SW SW NW Section 34-2n-2e, Benoist at 1,899-1,907 feet, pumped 145 bbls. Texas No. 5 Stonecipher, SE cor. SW SE Section 32-2n-2e, Benoist at 1,757-1,810 feet, pumped 350 bbls. Texas No. 4 Miller, NE NE SE Section 32-2n-2e, Benoist at 1,754-1,806 feet, flowed 46 bbls. in three hours, rated a 322-bbl. well. Texas No. 3 McConnaughay, SE SE SE Section 32-2n-2e, Benoist at 1,775-1,827 feet, flowed 38 bbls. in three hours, rated at 266 bbls. per day. Texas No. 1 McConnaughay A, SW cor. SE SE Section 32-2n-2e, Benoist at 1,760-1,813 feet, flowed 53 bbls. in three hours, rated a 370-bbl. well. Texas No. 6 K. Wayman, NE NE NE Section 31-2n-2e, Benoist at 1,687-1,732 feet, flowed 67 bbls. in three hours, rated a 469-bbl. well. Texas No. 10 J. F. Correll, Benoist at 1,727-74 feet, flowed 42 bbls. in three hours, rated at 294 bbls. a day. Texas No. 3 T. Stroup, NW SE SW Section 30-2n-2e, McClosky lime at 2,022-40 feet, acidized with 2,500 gallons, pumped 160 bbls. Texas No. 3 N. Shanafelt, SW NW NE Section 21-2n-2e, Benoist at 1,838-64 feet, pumped 27 bbls. in three hours, rated a 189-bbl. well. Texas Co. No. 2 N. Shanafelt, NW SW NE Section 21-2n-2e. Benoist at 1,850-60 feet, pumped 27 bbls. in three hours, rated at 189 bbls. a day. Magnolia Petroleum Co. No. 34 J. H. Young, NW NW SW Section 21-2n-2e, McClosky lime at 1,949-2,066 feet, flowed 1,497 bbls. in 18 hours. Magnolia No. 15 D. A. Shanafelt, SW NW NW Section 21-2n-2e, Bethel at 1,783-1,814 feet, shot with 50 quarts, swabbed 350 bbls. Ladd Oil Co. No. 2 Young Church, SW cor. NW Section 21-2n-2e, Benoist topped at 1,768 feet and McClosky lime topped at 1,893 feet flowed 1,200 bbls. through tubing, producing from both sands. Texas Co. No. 10 N. Young, SW SE NE Section 20-2n-2e, Benoist at 1,748-93 feet, shot with 40 quarts, flowed 609 bbls. Shell Petroleum Corp. No. 3 Salem State Bank A, SE NW SE Section 20-2n-2e, McClosky lime at 1,938-2,003 feet, flowed 923 bbls. in nine hours and was then shut in.

Texas Co. No. 3 H. Heydrick, SW NE SE Section 4-1n-2e, Benoist sand at 1,869-89 feet, pumped 140 bbls. W. C. McBride, Inc., No. 4 William Fyke heirs, NW SW SE Section 5-1n-2e, McClosky at 1,955-95 feet, acidized with 2,500 gallons, flowed 120 bbls. in two hours and later flowed 1,100 bbls. in 24 hours. Texas Co. No. 21 City of Centralia land, NE cor. SW NE NE Section 5-1n-2e, McClosky at 1,977-80 feet and 1,990-94 feet, acidized with 2,000 gallons, flowed 91 bbls. in three hours and later flowed an estimated 637 bbls. in 24 hours. Texas No. 6 L. Hawthorne, SE SW SE Section 5-1n-2e, Benoist at 1,777-1,810 feet, pumped 35 bbls. in three hours, rated a 245-bbl. well. Texas No. 3 Bundy, NW cor. NE NW NE Section 6-1n-2e, Benoist sand at 1,771-91 feet, flowed 196 bbls. Texas No. 1 W. Carr B, SE NE NE Section 7-1n-2e, Benoist at 1,719-56 feet, pumped 250 bbls. Texas No. 5 G. Johnson, NE SE NE Section 7-1n-2e, Benoist at 1,740-72 feet, pumped 33 bbls. in three hours, rated at 231 bbls. Texas No. 6 W. Frederick B, NW NE NE Section 8-1n-2e, Benoist sand at 1,806-38 feet, followed 567 bbls. Texas No. 4 R. Craig, SW SW SW Section 9-1n-2e, McClosky lime at 2,081-88 feet, acidized with 2,000 gallons and again with 2,000 gallons, pumped 30 bbls. in three hours, rated at 210 bbls. per day. Texas No. 1 J. R. Fyke, NE NE NW Section 17-1n-2e, Benoist at 1,849-81 feet, pumped 18 bbls. in three hours, a 125-bbl. well.

Max Pray No. 1 Langenfeld, SW NW SW Section 4-2n-1e, north of the Sandoval field in Marion County, which was a failure in the Niagara lime, total depth 3,075 feet, will be drilled with standard tools to the Trenton lime or to St. Peter sand. Rotary tools were being moved out.

In Clay County, Pure Oil Co. No. 1 E. Brown, C W half NE SE Section 22-1n-7e, pay at 3,127-50 feet, total depth 3,161 feet, acidized with 3,000 gallons, flowed 212 bbls. of oil and 96 bbls. of water. Pure Oil Co. No. 2 Brown Consolidated, C E half NE SE Section 22-1n-7e, pay at 3,132 to 3,144 feet at inter-

vals flowed 164 bbls. through perforated casing. Pure No. 12 A. Johnson, C W half SE SW Section 27-1n-7e, pay at 3,121 to 3,156 feet at intervals, pumped 151 bbls. of oil and 21 bbls. of water. Pure No. 1 F. Behymer, C W half SE NE Section 4-1n-2e, pay at 3,032 to 3,062 feet, at intervals, acidized with 5,000 gallons, flowed 567 bbls.

In Clinton County, Newton & Ward No. 6 Gross, SW cor. SE SE SW Section 5-1n-3w, Cypress sand at 964-75 feet, shot with 15 quarts, pumped 81 bbls.

In Macon County, Decatur Oil Co. No. 1 Cook, NE NW SE Section 21-15n-2e, top of Trenton lime at 3,035 feet, total depth 3,175 feet, dry and abandoned.

In Cumberland County, Doran and others No. 1 Haskett, C W half W half W half Section 15-10n-7e, total depth 2,050 feet, in Cypress sand, dry and abandoned.

In Wabash County, Cecil Keneiff No. 1 Kogan heirs, SE cor. NE NW Section 2-1n-12w, second principal meridian, was dry and abandoned at 1,085 feet. It was shot with 20 quarts in Bridgeport sand at 1,065-85 feet.

In St. Clair County, O'Meara and others No. 2 Tarlton, C N half NW SW Section 27-1n-10w, Trenton lime top at 509 feet, total depth 540 feet, acidized with 2,000 gallons pumped 90 bbls. of oil and some water.

In Clinton County, Shell Petroleum Corp. No. 7-A Criley, SW SE SE Section 35-2n-1w, Stein sand at 1,188-1,220 feet, shot with 21 quarts, pumped 84 bbls. Adams Oil & Gas Co. No. 11 Copple, SE SW SE Section 35-2n-1w, sand at 1,196-18 feet, shot with 10 quarts, pumped 40 bbls.

In Bond County, Lindsey Brothers and British American Oil Co. No. 1 Butler, NE NE SW Section 31-4n-2w, an old well deepened from 1,325 feet to make a Devonian lime test, was abandoned at 2,516 feet. It topped Devonian at 2,465-2,516 feet, with a slight stain of oil, but with some water.

In Wayne County, Pure Oil Co. No. 1 Evans, C W half NW NE Section 28-2n-8e, Fredonia top at 3,001 feet pay, at intervals, at 3,034-60 feet, total depth 3,095 feet, acidized with 6,000 gallons, pumped 97 bbls.

In Wayne County, G. A. Manahan No. 1 E. Fitch, C N half SE NE Section 10-1n-8e, pay at 3,085-3,103 feet, flowed 132 bbls. in 1½ hours and shut in. It was not completed. G. A. Manahan No. 1 D. Fitch, C N half SW SE Section 3-1n-8e, pay at 3,059-83 feet, set 5½-inch casing at 3,049 feet and plug was being drilled.

Roche & Voyles No. 2 McPherson, C N half SE NE Section 4-2s-7e, pay at 3,258-70 feet, flowed 125 bbls. in 90 minutes and shut in. Texas Co. No. 2 J. G. Boggs, C E half NE NE Section 8-3s-7e, Fredonia lime at 3,341 feet, total depth 3,466 feet, tested salt water and was abandoned.

In Edwards County, Leach Brothers No. 1 A. D. Lee, SW NE SE Section 11-1s-10e, shut down at 4,101 feet, Salem lime topped at 3,422 feet.

In Clay County, Pure Oil Co. No. 6 Sol Smith A, C E half NE SE Section 9-2n-8e, Fredonia lime top 2,968 feet, total depth 3,065 feet, acidized with 5,000 gallons, flowed 300 bbls. net oil. Schafly & Dameron No. 4 Nash, NW NW NE Section 13-3n-6e, Fredonia pay at 2,963-70 feet acidized with 5,500 gallons, swabbed 275 bbls. gross in five hours, later pumped 45 bbls. of oil and no water in 24 hours.

First Reports on Wildcats

Gordon Houck and others No. 1 Morhead, 1,050 feet from S and W lines, SW quarter Section 18-8n-4e, Effingham County, drilling at 1,000 feet.

In Clay County, Minerva Oil Co. No. 1 John Smith, SW SW NW Section 23-5n-5e, drilling at 400 feet.

In Wayne County, H. H. Weinert No. 1 Cunningham, C S half NW NE Section 27-2s-8e, moving in rotary.

In White County, Shirley & Priest No. 1 Matilda How, NE NW SE Section 32-3s-14w, second principal meridian, derrick on ground. Arab Petroleum Co. No. 1 Pearce, NE NE NW Section 35-6s-10e, location.

In Perry County, E. J. Shaefer No. 1 Sprague, SW NE NW Section 33-5s-4w, rigging up standard tools.

In Gallatin County, J. Garfield Buell No. 1 Sutton, C S half NW NW Section 5-8s-10e, total depth 200 feet, shut down by high water. Bailey & Lucas No. 1 Doctor Logan, SW cor. SE NE NE Section 21-8s-8e, drilling at 2,040 feet. Coates and others No. 1 Green, SW cor. Section 16-9s-9e, set 7-inch casing at 2,595 feet, total depth 2,672 feet. Dillon and others No. 1 Carroll Frohock, SW SW NE Section 10-10s-8e, location. Delta Drilling Co. No. 1 Stenson, 508 feet from S and 258 feet from E line, SW quarter Section 9-9s-9e, location.

Wildcat Progress

In Champaign County, Sidney Oil & Gas Co. No. 1 Wendling, SE NE SE Section 10-17n-10e, was shut down at 1,165 feet for repairs.

In Shelby County, Rex Development Co. No. 1 Odell, NE SE NW Section 20-14n-2e, was drilling at 400 feet. Independent Refining & Production Co. No. 1 Hackenburg, SE SW SW Section 20-12n-2e, had Fredonia lime top at 1,610 feet, a showing of noninflammable gas (between 3,000 and 5,000 cu. ft.) at 1,623-31 feet, and the crew was underreaming 6-inch casing. D. J. Marshall and others No. 1 H. Riley, C NE NE Section 9-11n-4e, set 10-inch casing at 60 feet. Swords & McDougal No. 1 Dorst, NW NW NW Section 17-11n-2e, drilling at 1,670 feet. Aux Vases was topped at 1,648 feet and Weiler and Benoist sands had also been penetrated.

In Coles County, T. S. Ingram No. 1 Wilson, N C NE SW Section 4-13n-14w, second principal meridian, total depth 525 feet, plugged back to 390 feet and shot with 10 quarts at 350-390 feet, cleaning out. Wheless and others No. 2 Michaels, C SE SE NE Section 2-11n-7e, had Weiler sand at 1,827 feet, set 7-inch casing at 1,854 feet and cement was being drilled. Schlumberger test showed shale at 1,852-89 feet.

In Edgar County, Robe & Henderson No. 1 Sarah Wait, C NE NE Section 16-12n-13w, second principal meridian, had Ste. Genevieve lime at 658 feet, and was at a total depth of 727 feet, fishing for bit.

In Clark County, Miller & Miller No. 1 Young, SE cor. NE NW NE Section 17-11n-14w, was drilling at 240 feet. H. R. Snavely No. 1 Schofield, SE NE SE Section 6-11n-11w, was shut down at 855 feet. Leland Wagner No. 1 Baughman, SW cor. NE NW SE Section 20-9n-14w, shut down at 975 feet.

In Montgomery County, Fred DeMeier No. 1 Canady, SW SE SW Section 31-9n-4w, was fishing for tools, total depth 420 feet.

In Effingham County, Whisenant & Trenchard No. 1 Henry Betram, SW NW NW Section 23-8n-6e, drilling at 1,100 feet.

In Greene County, in western Illinois, Erie Drilling Co. No. 1 Stelle, NE NE SE Section 1-8n-14w, was shut down at 460 feet.

In Jasper County, National Consumers Oil Co. No. 1 A. Leamon, NW SW SW Section 4-8n-14w, of second principal meridian, had McClosky saturation in streaks at 1,329-62 feet, total depth, and is shut down. Robey Drilling Co. No. 1 Whalen, SW SW SW Section 24-8n-9e, set 10¾-inch casing at 160 feet and was drilling at 350 feet.

In Crawford County, Producers Oil & Development Co. No. 1 Snyder, C W half E half SE NW Section 7-8n-13w, total depth 1,085 feet, moving out rotary tools and will continue with portable rotary. Anderson No. 1 Hostettler, SW cor. NW SW Section 31-8n-11w, shut down at 1,400 feet.

In Montgomery County, R. E. Johnston No. 1 Fuller, SW SW NW Section 7-7n-2w, shut down at 700 feet.

In Bond County, Kesl and others No. 1 Satthoff, NE NE NW Section 12-6n-5w, drilling at 410 feet. Devonian Oil Co. No. 1 Ambuell, NE NE SW Section 22-6n-4w, shut down at 1,120 feet.

In Clark County, H. R. Snavely No. 1 L. Mann, NE cor. NW NW SE Section 18-6n-12w, total depth 600 feet, running 10-inch casing.

(Continued on Page 121)

Gulf Stops at 4,580 Feet and Will Test Four Upper Sands

OWENSBORO, Ky., Mar. 6.—The Gulf Refining Co. which has been drilling a deep test on the L. W. Schmetzer farm 7 miles west of Madisonville, Hopkins County, is reported to have quit drilling at 4,580 feet. The test penetrated four sands on the way down which were not tested but from one or more of which the company will try to get commercial production.

Sun Oil Co. and Kentucky Natural Gas Co. No. 2 Ezra Allgood, in the Henderson County side of the Birk City field, is good for 150 bbls. per day from McClosky lime pay. The discovery well, in the Corydon district, drilled by Sun and Kentucky Natural, is flowing naturally at the rate of 360 bbls. per day.

Improved weather conditions have stirred operators to prepare for spring drilling and a number of locations were announced in Daviess, Hancock, Butler, McLean, Muhlenberg, and Ohio counties.

It was indicated last week that the Fordsville Gathering Lines would take only 75 per cent of the western Kentucky crude offered at the wells. The Fordsville has been taking 100 per cent of the oil offered to it. The Producers Pipe Line Co. and the Illinois Pipe Line Co. raised the proration on February 28 from 50 to 75 per cent on western Kentucky crude.

Following is the report of the week's completed work and new operations in the western Kentucky fields:

Butler County, Huntsville district: Porter Evans and others No. 4 V. A. Harrison is a 10-bbl. well in Jett sand, total depth 370 feet. Three and one-half miles southeast of Tilford: R. H. Allison and others are moving in material to start No. 1 Nat Phelps.

Daviess County, Glenville district: A. V. Smith and others No. 2 Cravens Heirs, location. Birk City district: J. C. Miller, trustee, and others No. 1 Federal Land Bank, location. Handyville district: Amos Schaffer and others No. 1 Mort Fulkerson, spudding in.

Hancock County, Easton district: C. Combs and George Freelson No. 3 H. H. Hendricks, spudding in.

Henderson County, Birk City district: Sun Oil Co. and Kentucky Natural Gas Co. No. 2 Ezra Allgood started at 150 bbls. per day from McClosky pay at 2,060-65½ feet, total depth 2,073 feet. Corydon district: Sun Oil Co. and Kentucky Natural Gas Co. No. 1 George Trigg is good for 15 bbls. per hour, natural flow, in 3 feet of McClosky saturation, total depth 2,605 feet.

Hopkins County, 10 miles southwest of Madisonville: W. P. Clements and others No. 1 Pearl Neicz, is a 1,000,000 cu. ft. gas well in Cunningham sand, total depth 1,306 feet. Seven miles west of Madisonville: Gulf Refining Co. No. 1 L. W. Schmetzer is at a total depth of 4,580 feet; will try to make a well from one or more of four sands that showed saturation.

McLean County, Island district: South Penn Oil Co. No. 7 H. K. and John Kirtley, location. South Livermore district: J. C. Ellis No. 2 Stephens Heirs is a 600,000 cu. ft. gasser in Bethel sand. Maxwell district: J. C. Ellis and others No. 4 Ruth Shockley is a dry hole at 923 feet.

Muhlenberg district, Greenville district: Frank Bernier and others No. 1 M. L. Boggess, moving in. Cleaton district: South Penn Oil Co. No. 1 Rogers Brothers Coal Co. is drilling at 160 feet.

Ohio County, Hites Falls district: R. H. Allison and others No. 6 A. Davidson, location.

EASTERN KENTUCKY OPERATIONS

ASHLAND, Ky., Mar. 6.—Activities in eastern Kentucky hit a new low last week, with no completions reported.

In Knott County, Inland Gas Corp. is running 10-inch pipe to 279 feet, in slate, in No. 206 Zada Hutcherson land on the Right Fork of Troublesome Creek. The same company has 10-inch casing set at 189 feet in No. 207 on the Curtis Pigman land, also on the Right Fork of Troublesome Creek.

Kentucky-West Virginia Gas Co. is moving to location of No. 579 on the Sherwood Osborne farm on Little Doty Branch and is hauling fuel line to No. 580 on the H. H. Smith land on Caney Fork.

In Floyd County, Kentucky-West Virginia Gas Co. is rigging up No. 5250 on the William Crider land on Johns Creek.

In Martin County, Kentucky-West Virginia Gas Co. was drilling at 780 feet, in sand, in No. 5251 on the C. W. Preece farm on Coldwater fork.

North and East Texas

By
D. H. STORMONT

Prospective Strawn Pool in Archer; Relief for K. M. A.

WICHITA FALLS, Tex., Mar. 6.—Archer County led the development in the North Texas area with a possibility of a new pool and another test which is drilling below 5,770 feet, the deepest test drilled in the county.

Indicating a new Strawn sand pool in northwestern Archer County from the 4,300-foot pay, similar to that producing as the second pay in the Hull-Silk pool several miles to the east, E. P. Griffin No. 1 Waggoner, Section 3, Block 4, H.&T.C. Survey, found saturation at 4,394-4,407 feet. The test is bottomed at 4,407 feet and the operator is running 7-inch casing to top of the sand. Location is approximately 3 miles southwest of the nearest production in the southwest corner of the K.M.A. pool. The test was originally contracted to 5,250 feet and will be carried to that depth should the present show fail to make commercial production.

Also in Archer County, and the deepest test ever drilled in the county, Louis Sikes No. 1 M. M. Martin, 3 miles northeast of the Sikes pool, is drilling below 5,770 feet in a dolomite of the Lower Ordovician. Several shows have been encountered in the course of drilling; however, none sufficient for a commercial producer.

Clay County

One of the greatest plays in a prospective wildcat producing area in North Texas prior to the completion of the wildcat as a producer, is under way in Clay County around L. T. (Bobby) Burns No. 1 Browning, Block 94, Belcher Survey, 6 miles southwest of Blue Grove, in the southwestern part of the county. This well is shut down while Burns clears lease titles. The test is on a block of 2,000 acres and has logged oil sands from three separate levels, the lower one from 4,433-52 feet being the most likely producer. Casing is still cemented on top of the sand and plug will not be drilled until the titles have been cleared.

Several companies have purchased leases in the area, the play extending south of the well and to the southeast where most of the open tracts lie. Prices for leases are ranging from $7 to $25 per acre, according to distance from the well.

Clay County received another deep wildcat when Mid-Union Drilling Co. staked a location on its 2,145-acre block out of the R. C. Kinder lands, Block 2, Clark and Plumb Survey. The acreage is northwest of the Burns test and its spudding is scheduled for the near future.

Montague County

Montague County, in which a 2,600-foot Strawn sand pool was opened shortly after the first of the year, will be given a 5,000-foot wildcat test on a block assembled as the result of the pool's opening. J. I. Stakey, operator of Wichita Falls, active in the K.M.A. pool, was preparing to spud his No. 1 E. D. Nunley, 330 feet from the east and midway between the north and south lines of the Nunley tract. Location is in the U. S. Ussery Survey, Abstract 824, 2 miles southwest of the town of Montague.

K.M.A. Pool

The K.M.A. pool was given indications of a lifting of its pipe line proration when the Texas Co. and Sinclair Prairie Oil Marketing Co. began working on a plan whereby the Texas Co. will take over K.M.A. connections from the Sinclair Prairie company, and that firm will absorb some of the former's East Texas purchases. This will allow Sinclair Prairie to take the full allowable at K.M.A. leaving Continental Oil Co. as the only prorating firm in the field.

NORTH TEXAS COMPLETIONS

Archer County

E. C. Oil Co. No. 11 Anna Mangold, 3,727-3,845 feet, 465 bbls. W. T. Hutcheson, Jr., No. 7 L. F. Wilson, 210 feet, dry. Bridwell Oil Co. No. 1 W. C. Jones, 1,176 feet, dry. Rathke Oil Co. No. 3 C. Cowan, 1,124-37 ft., 80 bbls. C. H. Staley No. 11 Anna Mangold, 3,760-3,858 feet, 600 bbls.

Clay County

H. Bowers No. 9 C. J. Shumake, 1,135-65 feet, 255 bbls. Taylor and others No. 1 C. E. Groves, 1,142 feet, dry.

Cooke County

Hutton Witherspoon & Cook No. 2 F. Truebenbach, 835-42 feet, 44 bbls. Schermerhorn Oil Co. No. 19 Mary Kessler, abandoned location. Sinclair Prairie No. 4 J. M. Best, 4,950-75 feet, 1,125 bbls. M. Staniforth & Co. No. 1 B. Voth, abandoned location.

Foard County

Fleetwood & Kaufmann No. 1 P. Owens, 5,005 feet, dry.

Jack County

Danciger Oil & Refining Co. No. 6 Stella M. Ivey, 3,078-97 feet, 420 bbls. G. C. Gilmore No. 2 L. Carter, abandoned location. Montgomery and others No. 1 J. J. Power, 477 feet, dry. J. C. Richardson No. 1 W. H. Smith, 194-300 feet, 10 bbls. C. D. Thornton No. 8 F. C. Bloodworth, 325 feet, dry. W. D. Cline No. 1 J. T. Hunt, 535 feet, dry.

Montague County

W. B. Hamilton No. 1 E. J. Bouldin, 1,053 feet, dry.

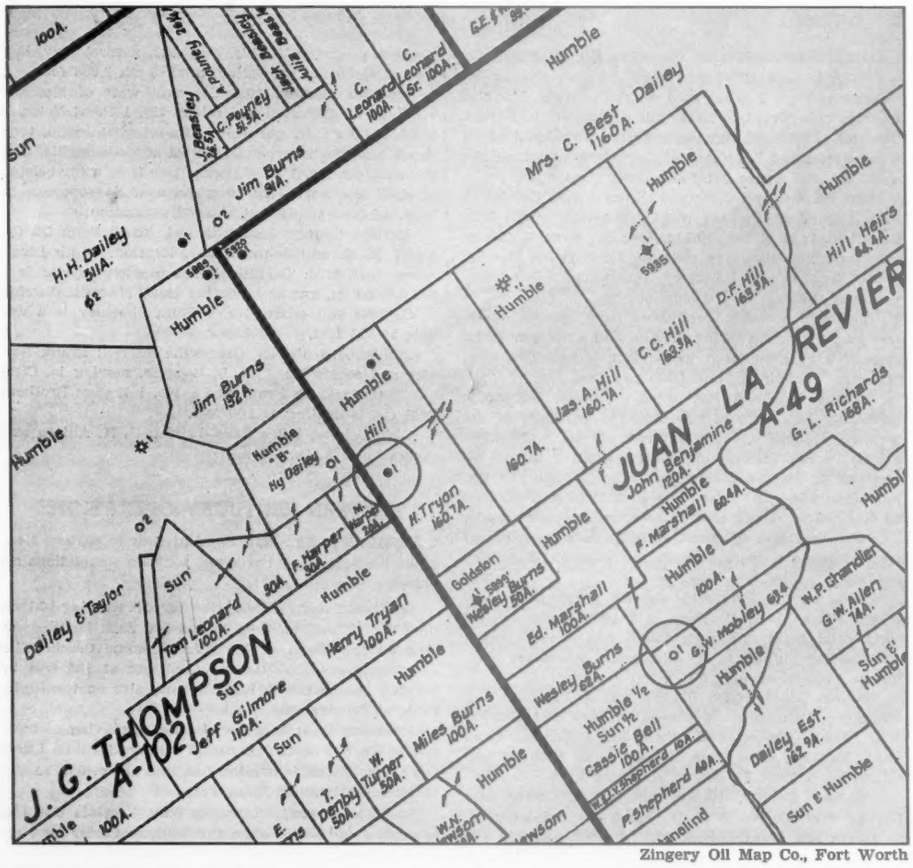
Wichita County

King Oil Co. No. 6 R. L. Crudup, 2,635-42 feet, 25 bbls. Seaboard Oil & Gas Co. No. 1 F. P. Warren, 630-48 feet, 7 bbls. Board of Mineral Development No. 12 State Lands, 3,691-3,777 feet, 1,200 bbls. D. H. Bolin No. 4 D. R. Preston, abandoned location. Consolidated Oil Co. No. 16 W. P. Ferguson, 3,683-3,809 feet, 1,500 bbls. Fain McGaha Oil Corp. No. 7 E. P. Griffin B, 3,749-3,839 feet, 1,130 bbls. Fain McGaha Oil Corp. No. 1 H. S. Griffin C, 3,743-3,832 feet, 1,150 bbls. A. P. Kouri No. 3 N. H. Martin A, 3,782-3,914 feet, 6 bbls. W. D. McClure and others No. 1 Goetze Brothers, 890 feet, dry. A. McCutcheon No. 4 L. C. Denny, abandoned location. Mul-Berry Oil Co. No. 5 R. J. Bradley, 3,837-3,970 feet, 725 bbls. Sunray Oil Co. No. 3 L. C. Denny, abandoned location.

Young County

R. Campbell No. 1 fee, 1,057 feet, dry. Chambers and others No. 1 G. W. Norton, 900 feet, dry. Brader & Groves No. 1 J. L. Clark, 3,846-70 feet, 40 bbls. King Oil Co. No. 1 T.L.&M. Co., 755 feet, dry. E. D. Willis

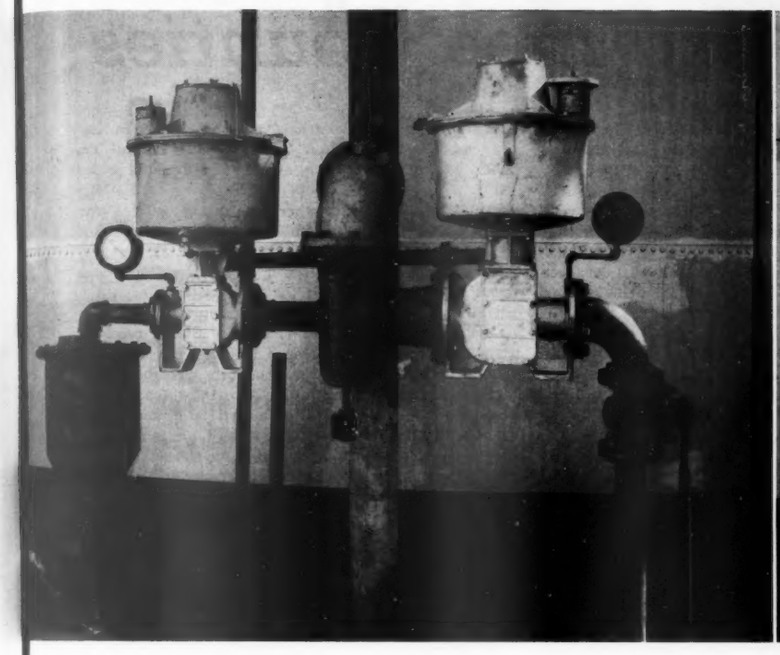
(Continued on Page 122)

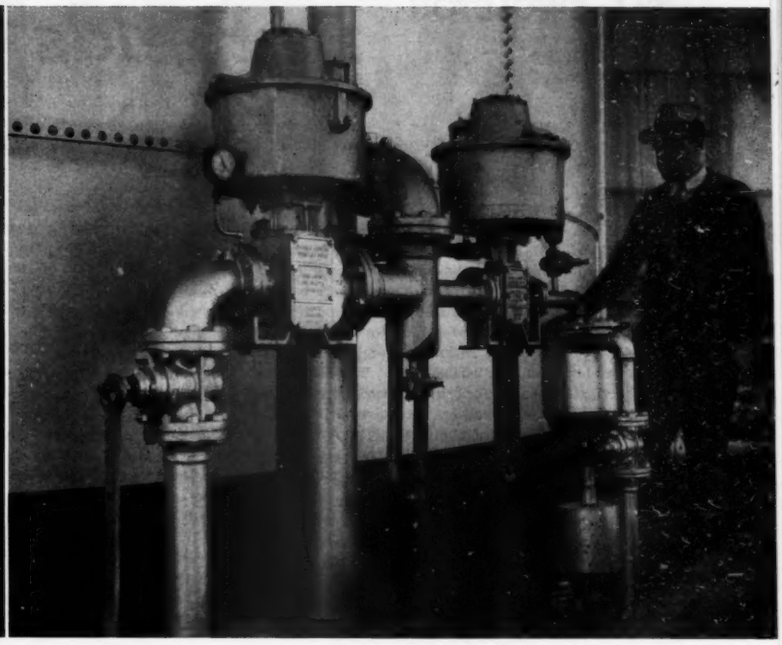


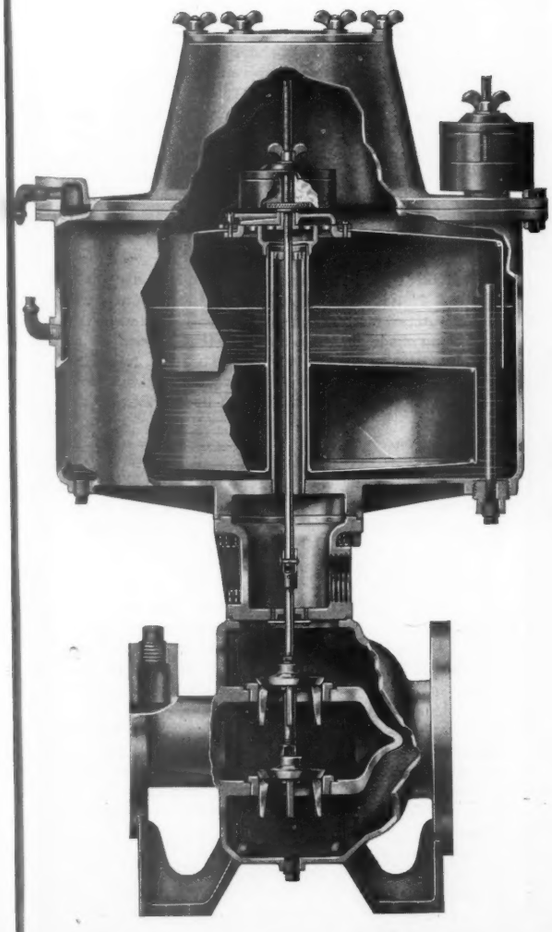
Zingery Oil Map Co., Fort Worth

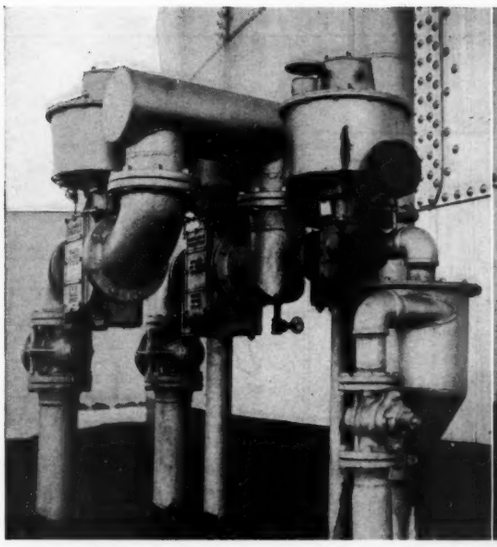
Navarro Crossing pool, Houston County, is the center of much activity with a new extension being completed and location made for a test farther south

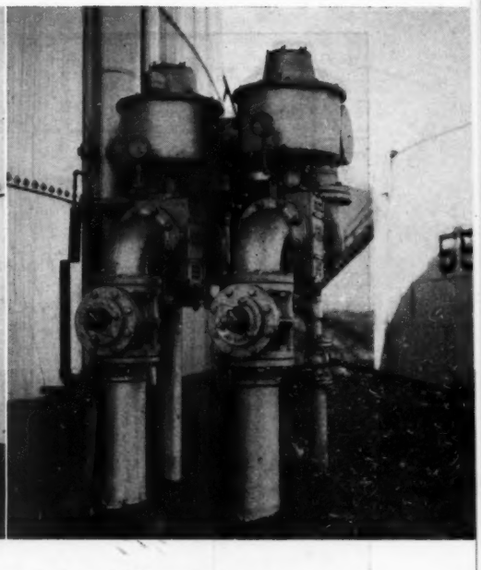
Dividends from the Air











Since the vapor recovery regulator is the key to the efficiency of a vapor recovery system, the rate of dividends it pays is determined largely by the sensitivity of the regulator to minute variations of pressure or vacuum.

The S. & J. Supersensitive Vapor Recovery Regulator is sensitive to less than 1/10″ of water, is positive in operation and requires no adjustment. Illustrated and described in a special bulletin, available on request.

SHAND & JURS CO.

BERKELEY, CALIFORNIA

295 Madison Avenue, New York
225 W. 11th Street, Los Angeles
601 Fannin Street, Houston
565 West Washington Boulevard, Chicago

SHAND & JURS

Southwest Texas District

New Producing Sands Found in Fields in Three Counties

By
F. L. SINGLETON

CORPUS CHRISTI, Tex., Mar. 6.—The opening of new producing horizons in several proven fields of the Southwest Texas district held the attention of operators in the past week.

North of the Samfordyce field, Hidalgo County, Fohs Oil Co. No. 1 Ed Sullivan is flowing an estimated 85 to 100 bbls. of 24.8-gravity oil per day through a quarter-inch choke, after perforating casing in a new sand at 3,424-32 feet. The well is in Share 254, Porcion 39, about a half mile north of the field proper, and is a northeast offset to Phillips Petroleum Co. No. 1 Flores, recently completed as a distillate producer at 5,840-5,900 feet. The completion opens the fifth sand for the structure and is expected to result in a rather extensive drilling campaign for that section of the field.

In La Rosa field, Refugio County, Morgan and Gulf Oil Corp. No. 1 B. D. Rooke, southwest part of the field, has apparently opened another productive sand as a drill-stem test at 5,709-14 feet, tested 1,000 feet of 37-gravity oil, and the well is being tested after cementing 5½-inch casing on bottom at 5,714 feet. It is a west offset to Hewitt and others No. 2 Rooke, which is producing from the 6,300-foot sand. The completion of the well will open the fifth sand for the structure as other wells are producing at 5,400, 5,900, 6,100 and 6,300 feet.

In the southern part of the Richard King field, Nueces County, Southern Minerals Corp. No. 16 King perforated casing in a new sand at 6,131-41 feet, and is cleaning into the pits, showing wash water and oil with a small amount of brackish water. The well is flowing through a quarter-inch choke under a tubing pressure of 550 pounds and casing pressure 1,425 pounds. The well is in Section 32, about 1,000 feet south of No. 15 King which produces from the regular sand at approximately 4,000 feet.

Nueces County

The Riverside field, Nueces County, was further defined as Henshaw Brothers No. 1 H. D. Countiss, 4,204 feet west of the discovery well, was abandoned at 5,525 feet. Shell Petroleum Corp. No. 1 Griffin, 1,650 feet northeast of the discovery well, is drilling in shale below 4,620 feet, and should core the sand by the first of the week. This is the first test to be drilled in this direction and the outcome will more or less determine future operations. Approximately 2½ miles northeast, and across the county line in San Patricio County, Republic Natural Gas Co. spudded No. 1 Crockett on a 112.37-acre lease in the Dy Land and Cattle Co. Survey.

Development in the active McCampbell field, San Patricio and Aransas counties, moved closer to the Aransas Pass city limits as Tom Graham began rigging up No. 1 Young, on line of Tracts 11 and 12, Block 212 of the Burton and Danforth subdivision, which places the well about 300 feet west of the city limits. Location for another interesting wildcat for this area was made by Otto Prassel who is preparing to start drilling operations on No. 1 S. A. Barker, approximately 2,600 feet south of the city limits and about 1 mile southeast of the production.

Corgey & Grote, who have been granted 36 permits to drill within the Aransas Pass city limits, received a 15-day extension from March 1 before starting their first townlot test. However, mud pits have been dug in the center of drilling district No. 10 which is composed of Blocks 213 and 751, and it is assumed that this will be the first test to be drilled. It is reported that a total of 52 drilling permits have been granted by the city and that 21 additional permits are pending.

Production tests were made on two important outpost tests but the results were disappointing. One mile south of production, Richardson Petroleum Co. No. 1 Sherwood is reported to be moving in additional drill pipe preparatory to drilling to 10,000 feet, after a drill-stem test through perforated casing at 6,858-68 feet showed salt water. J. K. Culton No. 1 Robert McCampbell, 3 miles west of the field, and located in San Patricio County, is coring below 6,700 feet after testing 1,700 feet of salt water with a slight show of gas on a drill-stem test at 6,760-76 feet.

In Jim Wells County and located 10 miles north of Alice, H. H. Howell abandoned No. 1 Wright at 6,796 feet. Several attempts to complete the well were made at intervals from 6,500-6,648 feet. Gravis & Doran No. 1 Clark, 2½ miles southeast of the East Alice area, perforated casing at 4,825-35 feet and tested 99 per cent salt water and 1 per cent distillate. The well is expected to be killed and recompleted at 5,138-42 feet, where it was originally completed as a distillate producer.

Jim Hogg County

Humble Oil & Refining Co. No. 1 Mestena Oil & Gas Co., Palitas Blanco grant, Jim Hogg County, was being watched with much interest as a drill-stem test was being made in a sand section that carried an oil and gas odor at 4,995-5,001 feet. The well is on the same trend as the Kelsey field, and the present depth is somewhat lower than the producing horizon in the latter field.

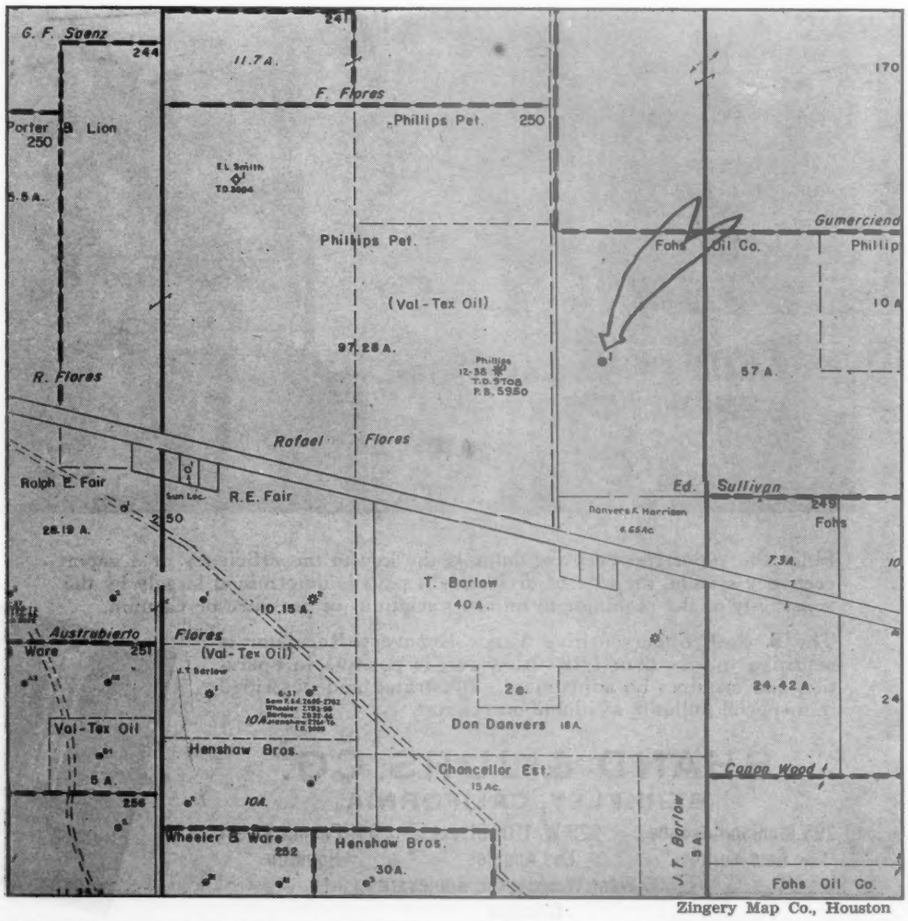
In the Kelsey field and located on the Brooks County side of the structure, Humble Oil & Refining Co. No. 5 McGill, 2,799 feet west of No. 1, is coring in sand below 4,810 feet. Three drill-stem tests at intervals from 4,696 to 4,725 feet showed unfavorable results.

Atlantic Refining Co. No. 1 Courtney, 1,450 feet southeast of the discovery well of the Tulsita field, Bee County, recovered 120 feet of oil and 5 feet of fresh water on a 10-minute drill-stem test at 3,626-31 feet, the total depth, and casing is being cemented for completion. Oil sand was cored at 3,622-24 feet, hard cap with an oil odor at 2,624-26 feet, and sand showing oil at 3,626-31 feet.

Prospect of opening oil production in the Lopena gas field, Zapata County, were not bright, as Thompson & Lowe No. 1 Ramerez, southwest of production, was swabbed within 330 feet from the bottom of the hole at 2,339 feet, and recovered only mud with no pressure.

Northeast of the Longhorn field, Duval County, Gravis & Doran No. 1 Parr, Section 21, San Andres grant, is plugging back from a total depth of 6,272 feet, preparatory to sidetracking and recoring sand section at 5,868-74 feet, which showed favorable indication on an electrical survey.

(Continued on Page 112)



Zingery Map Co., Houston

Fohs Oil Co. No. 1 Ed Sullivan, discovery well of a new sand in the Samfordyce field, Hidalgo County

Depend on Rotary Hose that

PAYS ITS WAY

Whenever talk turns to rotary hose, there's one thing on which oil men agree—you can always count on HEWITT Rotary Hose to pay its way. For even on some of the most troublesome drilling jobs ever reported, HEWITT has established cost-cutting records. Make it a point to "talk over rotary hose" with a HEWITT distributor. There are undeniable benefits in the synthetic tube we have developed, and our construction with enlarged and reinforced ends (to achieve full flow) is probably just what you've been looking for. HEWITT distributors are conveniently located in petroleum and industrial centers, and you will find them listed in the classified telephone directories under "Rubber Goods" or "Belting".

1859 For 80 years, HEWITT Brands have been recognized as outstanding examples of advanced research and exceptional craftsmanship. **1939**

HEWITT

RUBBER CORPORATION, BUFFALO, N. Y.

HOSE • CONVEYOR AND TRANSMISSION BELTS • PACKING

California Field Report

By
L. P. STOCKMAN

Regulation of Production by Law May Come to California

LOS ANGELES, Calif., Mar. 6.—The most important thing having to do with the California oil industry resolves itself into the question as to whether California producers want compulsory regulation of production by enactment of Assembly Bill No. 1926 now pending in the California legislature or cooperative proration of production on a voluntary basis.

Voluntary curtailment of production has heretofore solved many difficult crises, but it must be admitted that the present movement to reduce state production of crude oil to a maximum of 600,000 bbls. per day has failed to accomplish its objective.

The addition of 2,247,188 bbls. of crude and refined oil to storage in January and a further accumulation in February has brought the matter to the attention of all producers and refiners. Unless crude oil production is immediately reduced the crude and refined oil price structures must break. This is only half the picture, however, because when the tanks of buyers and refiners are filled producers will not have a market for current production at any price. This may force buyers to prorate purchases which in effect means compulsory regulation to a certain extent. The tanks of several buying companies will be filled to capacity within another three months and one company has been forced to build a reservoir to take care of commitments. It is generally agreed that, notwithstanding the construction of this reservoir, few, if any more, refiners and purchasing companies will undertake additional construction to take care of what may be a relatively temporary condition.

Important Meeting

A general curtailment meeting of all California producers has been called for March 9 at which time the entire situation will be discussed in the hope that some method may be found to prevent a general collapse. The accumulation of stocks has continued without interruption since October 1937, and there is no evidence of relief in sight. It therefore becomes necessary to reduce crude oil production in the immediate future. What will hurt, however, is the fact that production must be cut very substantially below 600,000 bbls. per day until the summer demand sets in, or some other means are found of increasing exports from the state either in the foreign market or to the Atlantic Coast for domestic consumption. As the situation stands it appears almost a certainty that the control bill now pending in the legislature will be passed if operators fail to agree on a definite program at the general meeting to be held in Los Angeles, March 9. Assembly Bill No. 1926 incorporates a number of very important features but in its present shape the objectionable features more than offset the favorable points. The bill which, according to reliable sources, is sponsored by the C.I.O., was introduced January 24, 1939, and referred to the Committee on Oil Industries. The preamble states that it is an act to prevent waste of crude petroleum oil, natural gas and products thereof, as defined in the act and in furtherance thereof, creating an oil conservation commission, defining the powers and duties of such commission, authorizing it to prescribe rules, regulations and orders, providing penalties for violation of the provisions of the act, and of the rules, regulations and orders of the commission, and levying a tax on the proceeds of oil and gas to pay the cost of the administration and enforcement of the act. The tax is prescribed as one-eighth of a cent on the proceeds of all crude oil and natural gas produced. The amount of the tax is insignificant but the act takes the control of the oil industry out of the hands of producers, refiners and marketers, and places it under control of a political commission of three members.

Montebello

Four good wells were completed in the Montebello extension in the past week, and indications point to the completion of several additional wells in the immediate future. Union Oil Co., which extended the productive limits of the western extension last week by completing No. 1 Calkins flowing 1,590 bbls. of 32.2-gravity oil from the fourth finger of the sixth zone, completed No. 4 Paul Howard, flowing 682 bbls. of clean 35.9-gravity oil per day from the Masser zone along with 700,000 cu. ft. of gas. The well was brought in flowing through a 22/64-inch bean, behind which it shows a tubing pressure of 490 pounds and a casing pressure of 850 pounds. It is bottomed in the lower member of the sixth zone at 6,694 feet and the 8⅝-inch water string at 6,650 feet. Union No. 30 La Merced, east of the eastern limits in the western extension, has reached a depth of 7,395 feet, but has not logged anything of importance since finding water in the fifth zone. At its present depth it is believed to be in the interval where the top of the seventh zone should normally be found. The well is not definitely a failure as far as deep production is concerned, but the outlook is not favorable.

Olympic Refining Co. recompleted No. 1 Smith Community in the Masser zone, flowing 510 bbls. of 36.2-gravity oil cutting 3 per cent through a 53/64-inch bean. This well was completed in the top member of the seventh zone about two weeks ago but in conformity with the prevailing agreement not to produce the seventh zone, the well was recompleted in the Masser or fourth member of the sixth zone. This well is now producing from perforations opposite the productive interval in the fourth finger of the sixth zone at 6,640-6-704 feet. The well was originally bottomed at 7,137 feet after the bit picked up the pay in the top of the seventh at 7,028 feet. Standard Oil Co. No. 2 Braun, originally completed in the upper member of the sixth zone, has been completed flowing 245 bbls. of 34.7-gravity oil, cutting 3.5 per cent, from the fourth finger of the seventh zone with bottom of the hole at 6,735 feet. The well flowed through a 1-inch bean and was finished with an 8⅝-inch water string landed at 6,655 feet and 107 feet of 6⅝-inch liner including 62 feet of perforated. The well has an elevation of 291 feet.

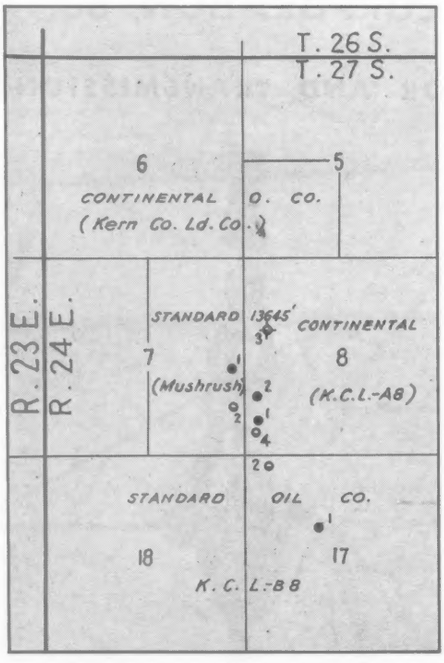
Herley-Kelly, Inc., made a formation test of the second member of the seventh zone in the Montebello field and with packer set at 7,135 feet and the hole open to bottom 7,235 feet, fluid reached the surface in 43 minutes and the well flowed at the rate of 500 bbls. per day. The drill pipe recovery consisted of six stands of oil and a small amount of brackish water on bottom. The formation test indicates that two members of the seventh zone will be found productive as other wells have found the first member of the seventh zone productive. Herley-Kelly well was No. 2 Burke Community, which recently made a test of the Masser zone and secured considerable gas with a spray of oil and found 80 feet of clean oil in the drill pipe indicating that it will be found commercially profitable to plug back and complete in the Masser zone and wait until exploitation of the seventh zone is permitted. The well did not test out the upper member of the seventh zone because that horizon had previously been found productive in nearby wells. It is the first well to actually test the second member of the seventh zone.

Pongratz Oil Co. recompleted No. 1 Newmark, a former upper zone completion, after redrilling and deepening the hole to 6,710 feet. No. 1 Newmark, finished in the Masser zone, was brought in flowing 720 bbls. of clean 36.3-gravity oil per day through a 1-inch bean. It was finished with a 7-inch water string landed at 6,650 feet, and 85 feet of 5½-inch liner, including 60 feet of perforated, landed on bottom, and 6,660 feet of 2½-inch tubing with packer at 6,635 feet.

Recent entrants into the Montebello extension include R. R. Bush Oil Co., Graham & Loftus Oil Corp., Traders Oil Co., Vulcan Oil Co., and Wood-Callahan Oil

TOTAL TANKER SHIPMENTS FROM CALIFORNIA TO DOMESTIC AND FOREIGN PORTS

	February 25		February 18			
Intercoastal-domestic—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	60,642	.....
Fuel oil	61,332	8,762	.....	.....	324,591	.....
Diesel and gas oil	.....	.....	.....	.....	233,051	178,662
Gasoline	.....	.....	.....	.....	66,715	344,116
Kerosene	.....	.....	.....	.....	56,940	59,885
Lubricants	.....	.....	.....	.....	4,170	.....
Foreign exports—						
Crude oil	697,434	99,673	262,614	37,516	3,068,583	3,747,968
Fuel oil	63,575	9,082	157,477	22,497	1,343,775	1,070,646
Diesel and gas oil	172,261	24,609	28,726	4,104	727,435	811,186
Gasoline	791,785	113,112	80,201	11,456	2,071,960	1,583,691
Kerosene	100,107	14,301	52,790	7,541	356,267	276,612
Lubricants	50,940	7,277	.....	.....	54,326	38,158
Coastwise-domestic—						
Crude oil	120,212	17,173	348,139	49,734	1,331,331	1,624,033
Fuel oil	509,550	72,793	330,502	47,215	2,144,506	3,146,369
Diesel and gas oil	34,211	4,887	92,475	13,211	483,377	357,838
Gasoline	293,707	41,958	361,994	51,713	2,229,203	2,849,261
Kerosene	16,148	2,307	39,530	5,647	105,598	64,265



In the Wasco field of Kern County, Continental Oil Co. has cored top of the pay below 13,000 feet in No. 4 Kern County Land in Section 8

They're Using a UNION *PRE-FORMED* Rotary Line

—because they want MAXIMUM drilling-line economy

Field records definitely prove that pre-formed rope — despite its slightly higher first cost—makes the most economical Rotary Drilling Line. This is because Rotary Drilling Lines must withstand severe bending, drum grinding and crushing. UNION Pre-formed ("UNION-formed") Rotary Lines are slower to fatigue under repeated bending because the individual wires and strands are not placed under a constant bending stress when laid into the rope, but are given the exact helical form they will take in the rope. This results in a stress-free rope.

"UNION-formed" also wears longer under drum grinding and crushing, because the exactly formed wires unite their strength to give the rope a firm body which better resists crushing—and because when outside wires become worn, they will not arch in the strand but lie flat and thus escape excessive friction.

"UNION-formed" Lines are also most economical for Tubing and Sucker Rod Lines, as these lines also must withstand severe bending.

The line on this well—Arkansas Fuel Co., Marion County, Texas,—is a 1⅛"x1300' 6 x 19 Flexible Seale, Improved Plow "UNION-formed" Rotary Line with Hemp Center. The men, left to right, are: Mose Browning, drilling supt., with D. Thomason Drilling Co.; C. C. Robinson, Union Wire Rope Corp.; H. B. Horton, fireman; Brad Walston and Hugh Castle, helpers; N. G. Alexander, derrickman; Pete Pylant, driller.

ROPE "DON'TS"
Don't let worn grooves in sheaves ruin your rope by pinching it and thus preventing free movement of the strands. Always test each groove for wear, with a groove gauge the same size as the new rope. If gauge seats in bottom of groove the groove is not worn. But if gap is present the sheave should be replaced immediately.

Union FORMED

UNION WIRE ROPE CORPORATION . . . . . KANSAS CITY, MO.

Sales Offices: Beacon Bldg., Tulsa, Okla.; Fort Worth, Texas; Houston, Texas; Chicago, Ill.

Gulf Coast Distributors:
PLOWDEN SUPPLY CO.,
3200 Navigation Blvd.,
Houston, Texas

JARECKI MFG. CO.
Distributors: Midcontinent, New Mexico, and Eastern Oil Fields

Export Agents:
LUCEY EXPORT CORP.,
Woolworth Bldg., New York;
Broad St. House, London

UNION WIRE LINES

The "ULTIMATE LOW COST WIRE ROPE"

Co. Other operating companies have recently taken additional acreage and may begin drilling soon.

Promising Wildcats

California Exploration Co. No. 2 Occidental, a wildcat in Section 24-26-20, about 3,000 feet west of the Lost Hills field in Kern County, found an interesting showing of oil sand in the Temblor at 5,538-88 feet. The well was cored ahead to 5,603 feet and plans are being made to land casing on bottom and then core ahead for a second sand which was cored in No. 1 Occidental, but which showed salt water. No. 2 Occidental is located about 1,500 feet east of No. 1 Occidental and appears to be running about 400 feet higher structurally. This exploratory work may bear watching due to the two sands found in No. 1 Occidental because even though they were "wet" in the first well they may be found productive of oil in No. 2. In No. 1 Salisbury, Section 7-29-24, about 6 miles southeast of the Buttonwillow gas field and approximately 9 miles southwest of the Rio Bravo field of Kern County, California Exploration Co. cored about 10 feet of oil sand at 11,525-35 feet and is at present coring ahead at 11,560 feet. The sand is believed to be the equivalent of the Stevens zone and may prove to be a thinning portion of the upper Stevens in which event the main body should be found within the next few hundred feet. This showing was cored late in the week and its importance is not yet known. California Exploration Co. holds about 1,500 acres close to the well while General Petroleum Corp., Union Oil Co., Richfield Oil Corp., Continental Oil Co., and Superior Oil Co. hold leases in the general vicinity.

Torrance

In the Torrance field of Los Angeles Basin, Pacific Western Oil Co. No. 12 Marble, an old well, was carried down to 4,932 feet and returned to production pumping 248 bbls. of 26.5-gravity oil, cutting 4 per cent. This well, in the Lomita section of the field, was finished with a 6⅝-inch water string landed at 4,750 feet and 193 feet of 5½-inch liner including 152 feet of 4¾-inch perforated on bottom. The well has an elevation of 88 feet. Three new wells were completed in the Walnut section of the field south of the Eshelman district, the most active section of the field. J. F. Pettyjohn No. 1 Adele at 240th Street and Walnut, was completed flowing 705 bbls. of 28.3-gravity oil per day through a 32/64-inch bean from 5,161 feet. North of this new well, L. M. S. Oil Co. completed No. 1-A Kettler at 237th Street and Walnut, flowing 220 bbls. of 26.9-gravity oil per day through a 24/64-inch bean from 5,160 feet. No. 1-A Kettler is the first oil well completed east of Walnut Street.

At 235th Street and Walnut, Alford Oil Co. completed No. 31 Bell, flowing 257 bbls. of fairly clean 25.9-gravity oil per day through a 19/64-inch bean from a depth of 5,152 feet. It was drilled by the Kern Drilling Co. from spud to completion in about 11 days This total elapsed time included time lost during the landing of casing. There has been no diminution in drilling in the Torrance field during the past several weeks because no sooner is one area drilled up than another new hot spot develops. The latest sections of the field undergoing development are the Eshelman area and the Walnut area but there is a possibility that an additional section due south of the Lomita section of the Torrance field will be opened for drilling within another few weeks. Leases in this section have been changing hands at a lively clip during the past week or 10 days. In the development of the Eshelman and Walnut areas, operators have adopted the practice of holding back pressure against all new wells and thus the limited amount of gas present is conserved. This has resulted in the completion of good wells and has prevented production from sliding off overnight as it did in the Lomita section of the field where very little consideration was given to gas conservation. None of the wells completed in the various sections of the Torrance field during the past year have shown a large gas production. The average is around 100,000 cu. ft. per well daily but the number of producing wells has grown to such an extent that preparations are under way to erect a small absorption plant. The gas is rich, and this offsets the lack of volume.

Wilmington

Although all of the competitive area in the Wilmington field has been drilled up operators are still engaged in development work and should complete at least 75 wells between now and the close of the year. It is quite probable that this figure will be greatly exceeded. It is not likely that drilling operations in the Wilmington field will be greatly affected by the new curtailment program. The chief concern in the field is the effort to be made by the federal Government to claim title to all California tidelands. This movement affects principally the tideland accumulation at Wilmington, Huntington Beach, Playa Del Rey, Rincon, and Elwood, which fields have production on both the uplands and beneath the tidelands. Universal Consolidated Oil Co. completed No. 7 Newport in the Wilmington field and it showed an initial production of 820 bbls. of 25.6-gravity oil from the upper Terminal zone with the lower Terminal zone production not gauged. No. 7 Newport was bottomed at 4,208 feet. Padreson Oil Co. No. 55-1-D was completed flowing 100 bbls. of clean 17.3-gravity oil from the Terminal zone and 150 bbls. of 17.9-gravity oil per day from the Ranger and tar zones. The well was bottomed at 3,662 feet.

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	February 25		February 18			
	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Intercoastal-domestic—						
Crude oil	.....	.....	.....	.....	60,642	.....
Fuel oil	61,332	8,762	.....	.....	324,591	.....
Diesel and gas oil	.....	.....	.....	.....	163,501	.....
Gasoline	.....	.....	.....	.....	66,715	344,116
Kerosene	.....	.....	.....	.....	56,940	59,885
Foreign exports—						
Crude oil	395,012	56,430	262,614	37,516	2,277,854	3,092,008
Fuel oil	.....	.....	157,477	22,497	1,082,960	910,312
Diesel and gas oil	117,492	16,785	28,726	4,104	608,017	660,321
Gasoline	557,255	79,608	80,201	11,456	1,477,320	890,590
Kerosene	10,310	1,473	52,790	7,541	217,243	166,162
Coastwise-domestic—						
Crude oil	120,212	17,173	348,139	49,734	1,331,331	1,624,033
Fuel oil	254,570	36,367	158,188	22,598	1,452,241	2,125,134
Diesel and gas oil	29,217	4,174	60,314	8,616	441,825	249,815
Gasoline	203,666	29,095	173,281	24,754	1,832,120	2,091,240
Kerosene	.....	.....	3,624	518	37,292	42,756

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Diesel and gas oil	.....	.....	.....	.....	69,550	178,662
Lubricants	.....	.....	.....	.....	4,170	.....
Foreign exports—						
Crude oil	302,422	43,203	.....	.....	790,729	655,960
Fuel oil	63,575	9,082	.....	.....	260,815	160,334
Diesel and gas oil	54,769	7,824	.....	.....	119,418	150,865
Gasoline	234,530	33,504	.....	.....	594,640	693,101
Kerosene	89,797	12,828	.....	.....	139,024	110,450
Lubricants	50,940	7,277	.....	.....	54,326	38,158
Coastwise-domestic—						
Fuel oil	254,980	36,426	172,314	24,616	692,265	1,021,235
Diesel and gas oil	4,994	713	32,161	4,594	41,552	108,023
Gasoline	90,041	12,863	188,713	26,959	397,083	758,021
Kerosene	16,148	2,307	35,906	5,129	68,306	21,509

San Joaquin Valley

Ohio Oil Co. completed its tenth productive well in the Canal field of Kern County when No. 10-E Kern County Land, in Section 14-30-25, was brought in flowing 1,020 bbls. of clean 35.7-gravity oil and 840,000 cu. ft. of gas per day from the Stevens zone with bottom of the hole at 8,320 feet. No. 10-E Kern County Land was carried down to 8,485 feet but was plugged back to the completion depth due to bottom water. The hole was finished with a 7-inch water string landed at 8,112 feet and 241 feet of Securaloy drillable liner including 137 feet of perforated landed at 8,317 feet and cemented through perforations at 8,178 feet. Ohio Oil Co., following completion of this well, made location for No. 11-E Kern County Land. Standard Oil Co. has recompleted No. 1 Rio Bravo fee, which was completed several weeks ago showing a rather high water cut and a small amount of gas and the well is flowing 106 bbls. of 36.1-gravity oil, cutting 2.4 per cent and 140,000 cu. ft. of gas per day from 8,280 feet. No. 1 Rio Bravo fee is flowing through a 16/64-inch bean and shows a tubing pressure of 250 pounds and a casing pressure of 900 pounds, indicating that the well is capable of larger production if opened up.

In the McKittrick field of Kern County, Standard Oil Co. completed No. 31, in Section 7-30-22, pumping 135 bbls. of 16.8-gravity oil per day from 2,240 feet but the output of the well is cutting 23 per cent. Additional development is expected to get under way in the Delano gas field where Standard Oil Co. is drilling a deep test on the M. & L. property in Section 3-25-23, as Trico Oil & Gas Co. has staked location 335 feet south and 1,655 feet west of the NE cor. SE Section 2-25-23, which will place it east of Standard No. 1 M. & L.

In the Devils Den district of Kern County, Amerada Petroleum Corp. is going ahead in a hard sandy shale at 4,285 feet in No. 6 Beer, but is still about 1,000 feet above the point at which the pay should be found. In the Wasco field, Continental Oil Co. is rotating ahead at 13,050 feet in No. 4-A Kern County Land in Section 8-27-24, and this well, which is located south of the company's No. 1-A Kern County Land in the same section and a north line offset of Standard Oil Co. No. 8-2-B Kern County Land, should reach the top of the productive horizon within the next 100 feet.

In the Arvin field of Kern County, discovered recently by a well drilled by Superior Oil Co. on property leased by Standard Oil Co. for the joint account of Standard, Superior, and Texas, Superior Oil Co. has staked location for No. 1 Jewett which will be drilled 600 feet south of Standard No. 1 Jewett, the discovery well. The latter is 990 feet south and 990 feet west of the NE cor. Section 16-31-29. In the Rio Bravo field of Kern County, General Petroleum Corp. made an open hole test of No. 3 Van Ness in Section 2-29-25, at 11,503 feet, and found the upper part of the Rio Bravo zone good for 1,542 bbls. of very clean 37.2-gravity oil and 1,700,000 cu. ft. of gas per day. Upon conclusion of this test, drilling operations were resumed and preparations started to complete in the lower part of the Rio Bravo zone.

Los Angeles Basin

In the Dominguez field of Los Angeles County, Shell Oil Co. recompleted No. 12 Reyes pumping 225 bbls. of very clean 29.7-gravity oil per day from 4,179 feet. This well was originally bottomed at 4,667 feet but the hole was redrilled to the completion depth. In the Brea Olinda field of Orange County, Brea Canyon Oil Co. completed No. 49 flowing 64 bbls. of 23.3-gravity oil, cutting 2.9 per cent, on a compressor from 4,891 feet. In the Seal Beach field, Continental Oil Co. completed No. 41 Bixby, a new well, pumping 350 bbls. of 27.8-gravity oil per day from 5,300 feet but the output of the well was still cutting 20 per cent at last reports. No. 41 Bixby was finished with a 7-inch water string landed at 5,050 feet and 254 feet of 5-inch liner including 152 feet of perforated. In the Ocean Park area, the Texas Co. had reached a depth of 7,335 feet in No. 1 Anderson, a wildcat located in Section 9-2-16, and is expected to hang up tools shortly. This well was first drilled straight down to 7,285 feet and finished in schist but found evidence of a fault and the hole was accordingly backed up and whipstocked to its present point. The hole, drilled by directional drilling, was higher structurally but did not show any oil or gas indications from top to bottom.

Coastal Area

In the Shiells Canyon district of Ventura County, El Rancho Oil Co. has completed No. 2 Elkins, a semi-wildcat in Section 9-3-19, pumping 130 bbls. of 25.7-gravity oil, cutting 2.1 per cent. This hole was bottomed at 3,158 feet and finished with a 9-inch water string landed at 3,053 feet and 123 feet of 7-inch liner including 86 feet of perforated and 2,760 feet of 3-inch tubing. Chanslor Canfield Midway Oil Co. has started three additional wells in the Rincon field of Ventura County where the company has completed several good wells during the past year. The new wells are No. 25 Hobson, rigging up rotary drilling equipment, and No. 26 and 27 now represented by new rigs.

In the San Miguelito field of Ventura County and located along the Ventura Avenue anticline about midway between the Ventura Avenue and Rincon fields, Continental Oil Co. failed to get a satisfactory water shut off on No. 10 Grubb in Section 24-3-24 at 7,015 feet and consequently completion will be delayed for another week.

Rocky Mountain Area

By
T. R. INGRAM

660-Bbl. Well in Cut Bank; Southeast Colorado Test Dry

DENVER, Colo., Mar. 6.—Continental Oil Co. test on the Cottonwood structure in southeastern Colorado was dry and abandoned in the Arbuckle lime. Mountain Fuel Supply Co. No. 1 Wilson, gas discovery well on Hiawatha, is testing saturated oil sand below the gas horizon.

Wyoming completions were confined to Lance Creek where the Ohio Oil Co. No. 8 Converse Sheep, a gas well on top of the structure, was worked over and made into an oil well after acidizing. Continental Oil Co. No. 14 Tom Bell Cattle made 316 bbls. initial in the Sundance. Adams Oil & Gas Co.-Felmont Corp. No 1 Baker made 162 bbls. on final test. The Cow Gulch Oil Co. No. 1 McGoon, wildcat east of Lance Creek, was abandoned after testing all sands down to the Bell. Continental released a location offsetting the Adams well and Ohio will deepen its No. 3 Agnes Rohlff to the Leo sand.

The R. C. Tarrant test on the Roscoe dome was abandoned after running out of hole and following a show of oil in the Dakota. The Glacier Production Co. had a good well in Cut Bank in its No. 5 State, which swabbed 275 bbls. in 10 hours. Kevin Sunburst had one completion, an average well.

NEW MEXICO

Completions of the past week in southeastern New Mexico included 10 oil wells and a wildcat failure in Lea County and an oil well in Eddy County.

Shell Petroleum Corp. No. 2 Foster, SE SW SE Section 34-19s-36e, Monument field, flowed 794 bbls. of oil and 234 bbls. of water in a 24-hour test from pay topped at 3,762 feet. Gas gauged 1,960,000 cu. ft. daily; total depth was 3,953 feet.

Continental Oil Co. No. 3 Sanderson B-14, C E half SE SW Section 14-20s-36e, found pay at 3,775 feet, was bottomed at 3,840 feet, and flowed 42 bbls. of oil hourly with 648,000 cu. ft. of gas daily.

Phillips Petroleum Co. No. 25 Santa Fe, C NW SE Section 30-17s-35e, Vacuum pool, topped pay at 4,330 feet, total depth 4,667 feet, and flowed 28 bbls. of oil an hour for eight hours through open 2-inch tubing set at 4,665 feet.

Texas Co. No. 16 Lieu-Lands, C NE SW Section 20-20s-37e, Monument-Eunice area, found pay at 3,745 feet and after acidizing two times flowed 153 bbls. of fluid in 18 hours, cutting 21 per cent sediment and water. Later the well flowed 95 bbls. of oil daily. Total depth was 3,850 feet.

Magnolia Petroleum Co. No. 25 State-Bridges, C NE SE Section 26-17s-34e, Vacuum field, topped pay at 4,445 feet, was bottomed at 4,750 feet and flowed 35 bbls. of oil in six hours through open 2½-inch tubing set at 4,749 feet.

The same company's No. 2-J State, C NW SE Section 22-17s-34e, flowed 16 bbls. of oil in three hours after second acid treatment. Top of pay was 4,510 feet, total depth 4,740 feet.

Italo Petroleum Corp. No. 1 Indian B-5, NW NE NE Section 5-25s-37e, set packer at 3,265 feet and flowed 132 bbls. of oil daily. Pay was topped at 3,460 feet and the hole was bottomed at 3,556 feet.

Same company's No. 2 Indian B-5, NE SE NE Section 5-25-37, had top of pay at 3,450 feet, total depth 3,548 feet, and after shooting at 3,548-50 feet flowed 11 bbls. of oil hourly.

Continental Oil Co. No. 4 Britt B-15, NW SW SW Section 15-20s-37e, flowed 36 bbls. of oil in nine hours with 475,000 cu. ft. of gas. Pay was topped at 3,822 feet, total depth 3,853 feet.

Danglade & Clower No. 1-B Glier, C SE NW Section 33-22s-37e, Skelly pool, found pay at 3,563 feet and was bottomed at 3,601 feet. After being shut in for 14 hours the well flowed 96 bbls. of oil daily with very little gas.

Barnsdall Oil Co. No. 1 Humble-State, C NE SE Section 33-16s-36e, wildcat 3 miles northwest of the Lovington pool, was dry and abandoned at total depth of 5,269 feet. The well was acidized and swabbed to bottom but received no shows of oil or gas.

Roe L. Newberry, formerly P. B. English, No. 1 Saunders, SE SE SE Section 13-17s-26e, Eddy County, was completed at total depth of 535 feet, in lime. Pay was found at 520-35 feet and the well pumped 25 bbls. of oil and 2 bbls. of water in 24 hours.

Lea County

Carper-Taylor No. 1 Taylor (wildcat), SW SW SW Sec. 30-16-32. Drlg. 1,640 ft. (cor.)
Continental Oil Co. No. 1-A Sanderson B-14, C N½ NW NW Sec. 14-20-36. W.O.C. 1,443 ft.
Continental Oil Co. No. 5 State H-35, C SW NE Sec. 35-17-34. Drlg. 3,581 ft.
Humble O. & R. Co. No. 2-K State, C NW NE Sec. 32-17-35. T.D. 4,675 ft.; swb. 1 B.O.P.H.; acdz.
Humble O. & R. Co. No. 3-K State, C NE SE Sec. 28-17-35. Drlg. 3,363 ft.
Humble O. & R. Co. No. 4-K State, C NE SE Sec. 32-17-35. C.&P.
Magnolia Pet. Co. No. 1-O State, C NW SW Sec. 33-17-35. Drlg. 3,300 ft.
Magnolia Pet. Co. No. 1-P State, C SW SE Sec. 22-17-35. Drlg. 3,098 ft.
Magnolia Pet. Co. No. 3-J State, C SE NE Sec. 22-17-34. Drlg. 1,076 ft.
Magnolia Pet. Co. No. 26 State-Bridges, C SE SW Sec. 26-17-34. Drlg. 4,150 ft.
Magnolia Pet. Co. No. 27 State-Bridges, C SE NE Sec. 26-17-34. Spdg.
Maljamar O. & G. Co. No. 2-B Baish, C NE NE Sec. 27-17-32. T.D. 2,602 ft.; S.D.O.
Maljamar O. & G. Co. No. 1-B Mitchell, C NE SE Sec. 20-17-32. T.D. 3,704 ft.; tstg.
Maljamar O. & G. Co. No. 2 Mitchell, SW SE SW Sec. 5-17-32. Spdg.
Ohio Oil Co. No. 1 State-Warn, C SE NE Sec. 33-17-35. Drk.
Ohio Oil Co. No. 2 State-Staplin, C NE SW Sec. 30-17-35. Drlg. 4,345 ft.
Phillips Pet. Co. No. 12 Santa Fe, C NE SW Sec. 28-17-35. T.D. 4,700 ft.; C.O.
Phillips Pet. Co. No. 15 Santa Fe, C NE NE Sec. 28-17-35. T.D. 4,700 ft.; C.O. 4,600 ft.
Phillips Pet. Co. No. 20 Santa Fe, C SW SW Sec. 27-17-35. W.O.C. 4,148 ft.
Phillips Pet. Co. No. 24 Santa Fe, C NE NE Sec. 34-17-35. Fsg. cones 3,905 ft.
Phillips Pet. Co. No. 26 Santa Fe, C NE SW Sec. 29 17-35. W.O.C. 4,150 ft.
Phillips Pet. Co. No. 28 Santa Fe, C NE SE Sec. 33-17-35. Rng. csg. 1,580 ft.
Repollo Oil Co. No. 2 State, Lse. 197, SE NE SE Sec. 6-17-34. Drlg. 4,775 ft.
Shell Pet. Corp. No. 1-C State, C NE SE Sec. 24-17-34. T.D. 4,733 ft.; C.O. 4,190 ft.
Shell Pet. Corp. No. 1-V State, C NE SE Sec. 21-17-35. Rng. tbg. 4,680 ft.
Standard Oil Co. of Texas No. 2 State, Lse. 6, C NE SW Sec. 34-17-35. W.O.C. 1,654 ft.
Standard Oil Co. of Texas No. 3 State, Lse. 3, C NE NW Sec. 32-17s-35. Drlg. 4,525 ft.
Stanolind O. & G. Co. No. 2 State, C SE NW Sec. 1-17-36. W.O.C. 3,103 ft.
Texas Co. No. 1-T State, C SE NE Sec. 25-17-34. T.D. 4,725 ft.; to test on pump.
Twin Oil Corp. No. 1-D State, C SW NE Sec. 30-17-35. T.D. 4,700 ft.; pump 10 B.O. and pumps off.
Fullerton Oil Co. No. 1-A Walker, C SW NW Sec. 18-18-32. Drlg. 3,270 ft.
Phillips Pet. Co. No. 16 Santa Fe, C NW SW Sec. 5-19-35. T.D. 4,750 ft.; C.O. 4,750 ft.
P. B. English No. 1 Miller, C NE SE Sec. 18-19-32 (wildcat). W.O.C. 916 ft.
Great Western Prod. Co. No. 2 Bordages, NE SE NW Sec. 33-19-37. T.D. 3,915 ft.; swb. est. 15 B.O.P.D.; acdz.
Continental Oil Co. No. 2 Britt B-10, C W½ NW SW Sec. 10-20-37. Drlg. 3,793 ft.
Continental Oil Co. No. 4 Sanderson B-14, NE SW NW Sec. 14-20-36. C.&P.
J. M. Rush No. 4 State A-20, NW SE SE Sec. 20-20-37. Abd. loc.
Texas Co. No. 17 Lieu-Lands, NW NW SW Sec. 19-20-37. Drk.
Aloco Oil Co. No. 1 Carson, C SW SE Sec. 28-21-37. T.D. 3,560 ft.; P.B. 3,566 ft.
Bryant-Driscoe No. 2 State, SE SW SE Sec. 12-21-35. T.D. 3,756 ft.; drlg. plug.
Danglade & Clower No. 1 Owen, NW SW SW Sec. 34-21-37. Drlg. 725 ft.
Gulf Oil Corp. No. 7 McCormack, C NE SE Sec. 32-21-37. T.D. 3,765 ft.; to swb.
Gulf Oil Corp. No. 2-B Mattern, C SE NE Sec. 31-2-37. Drlg. 2,970 ft.
Gulf Oil Corp. No. 4 Ramsey, C SE SE Sec. 35-21-36. T.D. 3,800 ft.; tstg.
Magnolia Pet. Co. No. 1 Marshall, C SE NW Sec. 34-21-37. Drlg. 2,645 ft.
Francis C. Wilson No. 3 State, NW SE NE Sec. 7-21-35. T.D. 3,588 ft.; pmp. 20 gal. oil in 4 hrs.
Stanolind O. & G. Co. No. 4 Hill, C SW NE Sec. 6-21-37. Drlg. 3,417 ft.
J. C. Clower No. 1-B Manda, NE NE NW Sec. 28-22-37. T.D. 3,681 ft.; P. est. 50 B.O.P.D.; S.D.
Continental Oil Co. No. 1 State F-1A, C W½ SE NE Sec. 1-22-35. T.D. 3,829 ft.; to test natural.
Continental Oil Co. No. 5 State J-2, C SE SE Sec. 2-22-36. Loc.
Continental Oil Co. No. 5 State E-17, C W½ NW SW Sec. 17-22-36. W.O.C. 3,730 ft.
Gulf Oil Corp. No. 3-E Mattern, C NW NW Sec. 12-22-36. Drlg. 2,624 ft.
Olean Pet. Co. No. 2 Farrell, SW SE SE Sec. 22-22-37. T.D. 3,757 ft.; P.B. 3,625 ft.; 1,500 ft. O.I.H.
Skelly Oil Co. No. 7 Baker, C NW NE Sec. 27-22-37. Drlg. 1,179 ft.
Skelly Oil Co. No. 5 Simms, C NW SE Sec. 33-22-37. Drlg. 1,925 ft.
Texas Co. No. 2-B Fally, C SE SW Sec. 8-22-37. T.D. 3,720 ft.; S.&F. 20 B.O.P.D.
Texas Pacific Coal Oil No. 14-A State, C NW NE Sec. 11-26-36. Drlg. 3,400 ft.
Walter Donnelly No. 1 Davis, C SE NW Sec. 33-23-37. T.D. 3,600 ft.; F. 11 B.O.P.D.; tstg.
Great Western Prod. No. 2-B Leonard, C NW NW Sec. 32-23-37. C.&P.
Continental Oil Co. No. 4 Jack A-20, C SW NE Sec. 20-24-27. Drlg. 3,402 ft.
Continental Oil Co. No. 2 Jack B-37, C SW NE Sec. 27-24-37. W.O.C. 3,100 ft.
Humble O. & R. No. 4 Williams, C NW NW Sec. 34-24-37. Drk.
North Shore Oil Corp. No. 3 Woolworth, SW SW NW Sec. 33-24-37. Drlg. 700 ft.
North Shore Oil Corp. No. 4 Woolworth, NW NW NW Sec. 33-24-37. Loc.
Parker Drlg. Co. No. 3 Erwin, C W½ NE SW Sec. 35-24-37. T.D. 3,460 ft.; F. 10 B.O. in 8 hrs.; est. 3,000,000 cu. ft. gas.
Phillips and Pure No. 5 Woolworth, C SW SE Sec. 33-24-37. C.&P.
Phillips and Pure No. 6 Woolworth, C NE NE Sec. 33-24-37. T.D. 3,538 ft.; F. 246 B.O.P.D.; 1,000,000 cu. ft. gas.
Schermerhorn Oil Co. No. 5 Woolworth, NW SW NE Sec. 28-24-37. Drlg. 3,200 ft.
Schermerhorn Oil Co. No. 6 Woolworth, C SW SE Sec. 28-24-37. Drlg. 815 ft.
Sam Weiner No. 2 Woolworth, SW NW SW Sec. 33-24-37. T.D. 3,565 ft.; shot and C.O.
Weir Drlg. Co. No. 3 Woolworth, NE SW SW Sec. 28-24-37. Drlg. 3,083 ft.
Amerada Pet. Co. No. 1-B Stuart, NW SE NE Sec. 22-25-37. Drlg. 2,390 ft.
Anderson & Prichard No. 5 Wells, C NW NE Sec. 5-25-37. Loc.
Anderson & Prichard No. 1 Woolworth, NW NE NE Sec. 17-25-37. Drlg. 820 ft.
Culbertson & Irwin No. 3 Henry, SW SW SW Sec. 26-25-37. Drlg. 1,535 ft.
Gulf Oil Corp. No. 6 Stuart, C NW NW Sec. 11-25-37. T.D. 3,430 ft.; F. est. 140 B.O. in 11 hrs.
Italo Pet. Corp. No. 1 Carlson, SW NE NW Sec. 26-25-37. Drk.
Italo Pet. Corp. No. 1 Indian B-4, NE NW NW Sec. 4-25-37. W.O.C. 1,367 ft.
Italo Pet. Corp. No. 2-B N. M. Pet., SE SW NW Sec. 4-25-37. Drk.
Phillips and Pure No. 2 Woolworth, C SE NE Sec. 6-25-37. W.O.C. 338 ft.
Richmond Drlg. Co. No. 2-A State, C SW SW Sec. 2-25-37. Drlg. 2,675 ft.
Sam Weiner No. 3 Smith, C N½ NE SE Sec. 4-25-37. T.D. 3,506 ft.; C.O.; 3,490 ft.

Eddy County

Allen, Fair & Pope No. 1 Snowden, SE NE SE Sec. 36-17-29. Drlg. 980 ft.
Aston & Fair, Inc., No. 1 Hudson, C NE NE Sec. 18-17-31. Drlg. 2,510 ft.
W. H. Berry No. 1 Berry, NE NE NE Sec. 24-17-27. Drlg. 200 ft.
Danciger O. & R. Co. No. 1-B Turner, CEL NE SE Sec. 17-17-31. T.D. 3,530 ft.; F. 32 B.O.P.D.; may shoot.
Hammond & Sons No. 1 Ployhar-State, SW SW SE Sec. 16-17-28. Drlg. 1,610 ft.; S.S.O.
J. O. and J. H. Hammond No. 1 Paris, NE NW NW Sec. 5-17-29. S.D.O. 25 ft.
English & Harmon No. 1 Stogner, C NW SE Sec. 31-17-31. Drlg. 4,200 ft.
Flint Prod. Co. No. 1-L Dexter, SE NW SE Sec. 15-17-30. T.D. 3,466 ft.; 15 B.O.P.D.; acdg.
Jim E. Hughes No. 2 Brooks, NE SW NE Sec. 19-17-28. Abd. loc.
F. G. Keyes No. 3 Red Gulch, NW NW NE Sec. 16-17-28. Drlg. 1,720 ft.
Ohio Oil Co. No. 4 State-McCallister, Sec. 25-17-34. W.O.C. 510 ft.
C. B. Powell No. 1 Smith, NW NW NE Sec. 6-17-29. T.D. 2,566 ft.; S.D. rprs.
Red Lake Oil Co. No. 1 State, NE NE SE Sec. 20-17-28. T.D. 1,970 ft.; F. 50 B.O.P.D.
Repollo Oil Co. No. 5-A Parke, NW NE NW Sec. 23-17-30. R.U. mch.
H. J. Steinberger No. 1 Hastie, SE NE SW Sec. 18-17-28. T.D. 555 ft.; S.D.
Adkinson Oil Co. No. 1 Brainard, SE SW SE Sec. 5-18-27. Drlg. 1,438 ft.
Barney Cockburn No. 1 State-Graham, C NE NE Sec. 16-18-31. Drk.
Farmer & Tallmadge No. 1 Hubbell, NE SW Sec. 4-18-25. T.D. 490 ft.; Fsg. bit.
Franklin Pet. Corp. No. 1 Ballard, NE SE SE Sec. 1-18-30. Rng. csg. 2,000 ft.

Co. Other operating companies have recently taken additional acreage and may begin drilling soon.

Promising Wildcats

California Exploration Co. No. 2 Occidental, a wildcat in Section 24-26-20, about 3,000 feet west of the Lost Hills field in Kern County, found an interesting showing of oil sand in the Temblor at 5,538-88 feet. The well was cored ahead to 5,603 feet and plans are being made to land casing on bottom and then core ahead for a second sand which was cored in No. 1 Occidental, but which showed salt water. No. 2 Occidental is located about 1,500 feet east of No. 1 Occidental and appears to be running about 400 feet higher structurally. This exploratory work may bear watching due to the two sands found in No. 1 Occidental because even though they were "wet" in the first well they may be found productive of oil in No. 2. In No. 1 Salisbury, Section 7-29-24, about 6 miles southeast of the Buttonwillow gas field and approximately 9 miles southwest of the Rio Bravo field of Kern County, California Exploration Co. cored about 10 feet of oil sand at 11,525-35 feet and is at present coring ahead at 11,560 feet. The sand is believed to be the equivalent of the Stevens zone and may prove to be a thinning portion of the upper Stevens in which event the main body should be found within the next few hundred feet. This showing was cored late in the week and its importance is not yet known. California Exploration Co. holds about 1,500 acres close to the well while General Petroleum Corp., Union Oil Co., Richfield Oil Corp., Continental Oil Co., and Superior Oil Co. hold leases in the general vicinity.

Torrance

In the Torrance field of Los Angeles Basin, Pacific Western Oil Co. No. 12 Marble, an old well, was carried down to 4,932 feet and returned to production pumping 248 bbls. of 26.5-gravity oil, cutting 4 per cent. This well, in the Lomita section of the field, was finished with a 6⅝-inch water string landed at 4,750 feet and 193 feet of 5½-inch liner including 152 feet of 4¾-inch perforated on bottom. The well has an elevation of 88 feet. Three new wells were completed in the Walnut section of the field south of the Eshelman district, the most active section of the field. J. F. Pettyjohn No. 1 Adele at 240th Street and Walnut, was completed flowing 705 bbls. of 28.3-gravity oil per day through a 32/64-inch bean from 5,161 feet. North of this new well, L. M. S. Oil Co. completed No. 1-A Kettler at 237th Street and Walnut, flowing 220 bbls. of 26.9-gravity oil per day through a 24/64-inch bean from 5,160 feet. No. 1-A Kettler is the first oil well completed east of Walnut Street.

At 235th Street and Walnut, Alford Oil Co. completed No. 31 Bell, flowing 257 bbls. of fairly clean 25.9-gravity oil per day through a 19/64-inch bean from a depth of 5,152 feet. It was drilled by the Kern Drilling Co. from spud to completion in about 11 days This total elapsed time included time lost during the landing of casing. There has been no diminution in drilling in the Torrance field during the past several weeks because no sooner is one area drilled up than another new hot spot develops. The latest sections of the field undergoing development are the Eshelman area and the Walnut area but there is a possibility that an additional section due south of the Lomita section of the Torrance field will be opened for drilling within another few weeks. Leases in this section have been changing hands at a lively clip during the past week or 10 days. In the development of the Eshelman and Walnut areas, operators have adopted the practice of holding back pressure against all new wells and thus the limited amount of gas present is conserved. This has resulted in the completion of good wells and has prevented production from sliding off overnight as it did in the Lomita section of the field where very little consideration was given to gas conservation. None of the wells completed in the various sections of the Torrance field during the past year have shown a large gas production. The average is around 100,000 cu. ft. per well daily but the number of producing wells has grown to such an extent that preparations are under way to erect a small absorption plant. The gas is rich, and this offsets the lack of volume.

Wilmington

Although all of the competitive area in the Wilmington field has been drilled up operators are still engaged in development work and should complete at least 75 wells between now and the close of the year. It is quite probable that this figure will be greatly exceeded. It is not likely that drilling operations in the Wilmington field will be greatly affected by the new curtailment program. The chief concern in the field is the effort to be made by the federal Government to claim title to all California tidelands. This movement affects principally the tideland accumulation at Wilmington, Huntington Beach, Playa Del Rey, Rincon, and Elwood, which fields have production on both the uplands and beneath the tidelands. Universal Consolidated Oil Co. completed No. 7 Newport in the Wilmington field and it showed an initial production of 820 bbls. of 25.6-gravity oil from the upper Terminal zone with the lower Terminal zone production not gauged. No. 7 Newport was bottomed at 4,208 feet. Padreson Oil Co. No. 55-1-D was completed flowing 100 bbls. of clean 17.3-gravity oil from the Terminal zone and 150 bbls. of 17.9-gravity oil per day from the Ranger and tar zones. The well was bottomed at 3,662 feet.

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	February 25		February 18			
Intercoastal-domestic—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	60,642	.....
Fuel oil	61,332	8,762	.....	.....	324,591	.....
Diesel and gas oil	.....	.....	.....	.....	163,501	.....
Gasoline	.....	.....	.....	.....	66,715	344,116
Kerosene	.....	.....	.....	.....	56,940	59,885
Foreign exports—						
Crude oil	395,012	56,430	262,614	37,516	2,277,854	3,092,008
Fuel oil	.....	.....	157,477	22,497	1,082,960	910,312
Diesel and gas oil	117,492	16,785	28,726	4,104	608,017	660,321
Gasoline	557,255	79,608	80,201	11,456	1,477,320	890,590
Kerosene	10,310	1,473	52,790	7,541	217,243	166,162
Coastwise-domestic—						
Crude oil	120,212	17,173	348,139	49,734	1,331,331	1,624,033
Fuel oil	254,570	36,367	158,188	22,598	1,452,241	2,125,134
Diesel and gas oil	29,217	4,174	60,314	8,616	441,825	249,815
Gasoline	203,668	29,095	173,281	24,754	1,832,120	2,091,240
Kerosene	.....	.....	3,624	518	37,292	42,756

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Diesel and gas oil	.....	.....	.....	.....	69,550	178,662
Lubricants	.....	.....	.....	.....	4,170	.....
Foreign exports—						
Crude oil	302,422	43,203	.....	.....	790,729	655,960
Fuel oil	63,575	9,082	.....	.....	260,815	160,334
Diesel and gas oil	54,769	7,824	.....	.....	119,478	150,865
Gasoline	234,530	33,504	.....	.....	594,640	693,101
Kerosene	89,797	12,828	.....	.....	139,024	110,450
Lubricants	50,940	7,277	.....	.....	54,326	38,158
Coastwise-domestic—						
Fuel oil	254,980	36,426	172,314	24,616	692,265	1,021,235
Diesel and gas oil	4,994	713	32,161	4,594	41,552	108,023
Gasoline	90,041	12,863	188,713	26,959	397,083	758,021
Kerosene	16,148	2,307	35,906	5,129	68,306	21,509

San Joaquin Valley

Ohio Oil Co. completed its tenth productive well in the Canal field of Kern County when No. 10-E Kern County Land, in Section 14-30-25, was brought in flowing 1,020 bbls. of clean 35.7-gravity oil and 840,000 cu. ft. of gas per day from the Stevens zone with bottom of the hole at 8,320 feet. No. 10-E Kern County Land was carried down to 8,485 feet but was plugged back to the completion depth due to bottom water. The hole was finished with a 7-inch water string landed at 8,112 feet and 241 feet of Securaloy drillable liner including 137 feet of perforated landed at 8,317 feet and cemented through perforations at 8,178 feet. Ohio Oil Co., following completion of this well, made location for No. 11-E Kern County Land. Standard Oil Co. has recompleted No. 1 Rio Bravo fee, which was completed several weeks ago showing a rather high water cut and a small amount of gas and the well is flowing 106 bbls. of 36.1-gravity oil, cutting 2.4 per cent and 140,000 cu. ft. of gas per day from 8,280 feet. No. 1 Rio Bravo fee is flowing through a 16/64-inch bean and shows a tubing pressure of 250 pounds and a casing pressure of 900 pounds, indicating that the well is capable of larger production if opened up.

In the McKittrick field of Kern County, Standard Oil Co. completed No. 31, in Section 7-30-22, pumping 135 bbls. of 16.8-gravity oil per day from 2,240 feet but the output of the well is cutting 23 per cent. Additional development is expected to get under way in the Delano gas field where Standard Oil Co. is drilling a deep test on the M. & L. property in Section 3-25-23, as Trico Oil & Gas Co. has staked location 335 feet south and 1,655 feet west of the NE cor. SE Section 2-25-23, which will place it east of Standard No. 1 M. & L.

In the Devils Den district of Kern County, Amerada Petroleum Corp. is going ahead in a hard sandy shale at 4,285 feet in No. 6 Beer, but is still about 1,000 feet above the point at which the pay should be found. In the Wasco field, Continental Oil Co. is rotating ahead at 13,050 feet in No. 4-A Kern County Land in Section 8-27-24, and this well, which is located south of the company's No. 1-A Kern County Land in the same section and a north line offset of Standard Oil Co. No. 8-2-B Kern County Land, should reach the top of the productive horizon within the next 100 feet.

In the Arvin field of Kern County, discovered recently by a well drilled by Superior Oil Co. on property leased by Standard Oil Co. for the joint account of Standard, Superior, and Texas, Superior Oil Co. has staked location for No. 1 Jewett which will be drilled 600 feet south of Standard No. 1 Jewett, the discovery well. The latter is 990 feet south and 990 feet west of the NE cor. Section 16-31-29. In the Rio Bravo field of Kern County, General Petroleum Corp. made an open hole test of No. 3 Van Ness in Section 2-29-25, at 11,503 feet, and found the upper part of the Rio Bravo zone good for 1,542 bbls. of very clean 37.3-gravity oil and 1,700,000 cu. ft. of gas per day. Upon conclusion of this test, drilling operations were resumed and preparations started to complete in the lower part of the Rio Bravo zone.

Los Angeles Basin

In the Dominguez field of Los Angeles County, Shell Oil Co. recompleted No. 12 Reyes pumping 225 bbls. of very clean 29.7-gravity oil per day from 4,179 feet. This well was originally bottomed at 4,667 feet but the hole was redrilled to the completion depth. In the Brea Olinda field of Orange County, Brea Canyon Oil Co. completed No. 49 flowing 64 bbls. of 23.3-gravity oil, cutting 2.9 per cent, on a compressor from 4,891 feet. In the Seal Beach field, Continental Oil Co. completed No. 41 Bixby, a new well, pumping 350 bbls. of 27.8-gravity oil per day from 5,300 feet but the output of the well was still cutting 20 per cent at last reports. No. 41 Bixby was finished with a 7-inch water string landed at 5,050 feet and 254 feet of 5-inch liner including 152 feet of perforated. In the Ocean Park area, the Texas Co. had reached a depth of 7,335 feet in No. 1 Anderson, a wildcat located in Section 9-2-16, and is expected to hang up tools shortly. This well was first drilled straight down to 7,285 feet and finished in schist but found evidence of a fault and the hole was accordingly backed up and whipstocked to its present point. The hole, drilled by directional drilling, was higher structurally but did not show any oil or gas indications from top to bottom.

Coastal Area

In the Shiells Canyon district of Ventura County, El Rancho Oil Co. has completed No. 2 Elkins, a semi-wildcat in Section 9-3-19, pumping 130 bbls. of 25.7-gravity oil, cutting 2.1 per cent. This hole was bottomed at 3,158 feet and finished with a 9-inch water string landed at 3,053 feet and 123 feet of 7-inch liner including 86 feet of perforated and 2,760 feet of 3-inch tubing. Chanslor Canfield Midway Oil Co. has started three additional wells in the Rincon field of Ventura County where the company has completed several good wells during the past year. The new wells are No. 25 Hobson, rigging up rotary drilling equipment, and No. 26 and 27 now represented by new rigs.

In the San Miguelito field of Ventura County and located along the Ventura Avenue anticline about midway between the Ventura Avenue and Rincon fields, Continental Oil Co. failed to get a satisfactory water shut off on No. 10 Grubb in Section 24-3-24 at 7,035 feet and consequently completion will be delayed for another week.

Rocky Mountain Area

By
T. R. INGRAM

660-Bbl. Well in Cut Bank; Southeast Colorado Test Dry

DENVER, Colo., Mar. 6.—Continental Oil Co. test on the Cottonwood structure in southeastern Colorado was dry and abandoned in the Arbuckle lime. Mountain Fuel Supply Co. No. 1 Wilson, gas discovery well on Hiawatha, is testing saturated oil sand below the gas horizon.

Wyoming completions were confined to Lance Creek where the Ohio Oil Co. No. 8 Converse Sheep, a gas well on top of the structure, was worked over and made into an oil well after acidizing. Continental Oil Co. No. 14 Tom Bell Cattle made 316 bbls. initial in the Sundance. Adams Oil & Gas Co.-Felmont Corp. No 1 Baker made 162 bbls. on final test. The Cow Gulch Oil Co. No. 1 McGoon, wildcat east of Lance Creek, was abandoned after testing all sands down to the Bell. Continental released a location offsetting the Adams well and Ohio will deepen its No. 3 Agnes Rohlff to the Leo sand.

The R. C. Tarrant test on the Roscoe dome was abandoned after running out of hole and following a show of oil in the Dakota. The Glacier Production Co. had a good well in Cut Bank in its No. 5 State, which swabbed 275 bbls. in 10 hours. Kevin Sunburst had one completion, an average well.

NEW MEXICO

Completions of the past week in southeastern New Mexico included 10 oil wells and a wildcat failure in Lea County and an oil well in Eddy County.

Shell Petroleum Corp. No. 2 Foster, SE SW SE Section 34-19s-36e, Monument field, flowed 794 bbls. of oil and 234 bbls. of water in a 24-hour test from pay topped at 3,762 feet. Gas gauged 1,960,000 cu. ft. daily; total depth was 3,953 feet.

Continental Oil Co. No. 3 Sanderson B-14, C E half SE SW Section 14-20s-36e, found pay at 3,775 feet, was bottomed at 3,840 feet, and flowed 42 bbls. of oil hourly with 648,000 cu. ft. of gas daily.

Phillips Petroleum Co. No. 25 Santa Fe, C NW SE Section 30-17s-35e, Vacuum pool, topped pay at 4,330 feet, total depth 4,667 feet, and flowed 28 bbls. of oil an hour for eight hours through open 2-inch tubing set at 4,665 feet.

Texas Co. No. 16 Lieu-Lands, C NE SW Section 20-20s-37e, Monument-Eunice area, found pay at 3,745 feet and after acidizing two times flowed 153 bbls. of fluid in 18 hours, cutting 21 per cent sediment and water. Later the well flowed 95 bbls. of oil daily. Total depth was 3,850 feet.

Magnolia Petroleum Co. No. 25 State-Bridges, C NE SE Section 26-17s-34e, Vacuum field, topped pay at 4,445 feet, was bottomed at 4,750 feet and flowed 35 bbls. of oil in six hours through open 2½-inch tubing set at 4,749 feet.

The same company's No. 2-J State, C NW SE Section 22-17s-34e, flowed 16 bbls. of oil in three hours after second acid treatment. Top of pay was 4,510 feet, total depth 4,740 feet.

Italo Petroleum Corp. No. 1 Indian B-5, NW NE NE Section 5-25s-37e, set packer at 6,265 feet and flowed 132 bbls. of oil daily. Pay was topped at 3,460 feet and the hole was bottomed at 3,556 feet.

Same company's No. 2 Indian B-5, NE SE NE Section 5-25-37, had top of pay at 3,450 feet, total depth 3,548 feet, and after shooting at 3,548-50 feet flowed 11 bbls. of oil hourly.

Continental Oil Co. No. 4 Britt B-15, NW SW SW Section 15-20s-37e, flowed 36 bbls. of oil in nine hours with 475,000 cu. ft. of gas. Pay was topped at 3,822 feet, total depth 3,853 feet.

Danglade & Clower No. 1-B Glier, C SE NW Section 33-22s-37e, Skelly pool, found pay at 3,563 feet and was bottomed at 3,691 feet. After being shut in for 14 hours the well flowed 96 bbls. of oil daily with very little gas.

Barnsdall Oil Co. No. 1 Humble-State, C NE SE Section 33-16s-36e, wildcat 3 miles northwest of the Lovington pool, was dry and abandoned at total depth of 5,269 feet. The well was acidized and swabbed to bottom but received no shows of oil or gas.

Roe L. Newberry, formerly P. B. English, No. 1 Saunders, SE SE SE Section 13-17s-26e, Eddy County, was completed at total depth of 535 feet, in lime. Pay was found at 520-35 feet and the well pumped 25 bbls. of oil and 2 bbls. of water in 24 hours.

Lea County

Carper-Taylor No. 1 Taylor (wildcat), SW SW SW Sec. 30-16-32. Drlg. 1,640 ft. (cor.)
Continental Oil Co. No. 1-A Sanderson B-14, C N½ NW NW Sec. 14-20-36. W.O.C. 1,443 ft.
Continental Oil Co. No. 5 State H-35, C SW NE Sec. 35-17-34. Drlg. 3,581 ft.
Humble O. & R. Co. No. 2-K State, C NW NE Sec. 32-17-35. T.D. 4,675 ft.; swb. 1 B.O.P.H.; acdz.
Humble O. & R. Co. No. 3-K State, C NE SE Sec. 28-17-35. Drlg. 3,363 ft.
Humble O. & R. Co. No. 4-K State, C NE SE Sec. 32-17-35. C.&P.
Magnolia Pet. Co. No. 1-O State, C NW SW Sec. 33-17-35. Drlg. 3,300 ft.
Magnolia Pet. Co. No. 1-P State, C SW SE Sec. 22-17-35. Drlg. 3,098 ft.
Magnolia Pet. Co. No. 3-J State, C SE NE Sec. 22-17-34. Drlg. 1,076 ft.
Magnolia Pet. Co. No. 26 State-Bridges, C SE SW Sec. 26-17-34. Drlg. 4,150 ft.
Magnolia Pet. Co. No. 27 State-Bridges, C SE NE Sec. 26-17-34. Spdg.
Maljamar O. & G. Co. No. 2-B Baish, C NE NE Sec. 27-17-32. T.D. 2,602 ft.; S.D.O.
Maljamar O. & G. Co. No. 1-B Mitchell, C NE SE Sec. 20-17-32. T.D. 3,704 ft.; tstg.
Maljamar O. & G. Co. No. 2 Mitchell, SW SE SW Sec. 5-17-32. Spdg.
Ohio Oil Co. No. 1 State-Warn, C SE NE Sec. 33-17-35. Drlg.
Ohio Oil Co. No. 2 State-Staplin, C NE SW Sec. 30-17-35. Drlg. 4,345 ft.
Phillips Pet. Co. No. 12 Santa Fe, C NE SW Sec. 28-17-35. T.D. 4,700 ft.; C.O.
Phillips Pet. Co. No. 15 Santa Fe, C NE NE Sec. 28-17-35. T.D. 4,700 ft.; C.O. 4,600 ft.
Phillips Pet. Co. No. 20 Santa Fe, C SW SW Sec. 27-17-35. W.O.C. 4,148 ft.
Phillips Pet. Co. No. 24 Santa Fe, C NE NE Sec. 34-17-35. Fsg. cones 3,905 ft.
Phillips Pet. Co. No. 26 Santa Fe, C NE SW Sec. 29-17-35. W.O.C. 4,150 ft.
Phillips Pet. Co. No. 28 Santa Fe, C NE SE Sec. 33-17-35. Rng. csg. 1,580 ft.
Repollo Oil Co. No. 2 State, Lse. 197, SE NE SE Sec. 6-17-34. Drlg. 4,775 ft.
Shell Pet. Corp. No. 1-C State, C NE SE Sec. 24-17-34. T.D. 4,733 ft.; C.O. 4,190 ft.
Shell Pet. Corp. No. 1-V State, C NE SE Sec. 21-17-35. Rng. tbg. 4,680 ft.
Standard Oil Co. of Texas No. 2 State, Lse. 6, C NE SW Sec. 34-17-35. W.O.C. 1,654 ft.
Standard Oil Co. of Texas No. 3 State, Lse. 3, C NE NW Sec. 32-17s-35. Drlg. 4,525 ft.
Stanolind O. & G. Co. No. 2 State, C SE NW Sec. 1-17-36. W.O.C. 3,103 ft.
Texas Co. No. 1-T State, C SE NE Sec. 25-17-34. T.D. 4,725 ft.; to test on pump.
Twin Oil Corp. No. 1-D State, C SW NE Sec. 30-17-35. T.D. 4,700 ft.; pump 10 B.O. and pumps off.
Fullerton Oil Co. No. 1-A Walker, C SW NW Sec. 18-18-32. Drlg. 3,270 ft.
Phillips Pet. Co. No. 16 Santa Fe, C NW SW Sec. 5-18-35. T.D. 4,750 ft.; C.O. 4,750 ft.
P. B. English No. 1 Miller, C NE SE Sec. 18-19-32 (wildcat). W.O.C. 916 ft.
Great Western Prod. Co. No. 2 Bordages, NE SE NW Sec. 33-19-37. T.D. 3,915 ft.; swb. est. 15 B.O.P.D.; acdz.
Continental Oil Co. No. 2 Britt B-10, C W½ NW SW Sec. 10-20-37. Drlg. 3,793 ft.
Continental Oil Co. No. 4 Sanderson B-14, NE SW NW Sec. 14-20-36. C.&P.
J. M. Rush No. 4 State A-20, NW SE SE Sec. 20-20-37. Abd. loc.
Texas Co. No. 17 Lieu-Lands, NW NW SW Sec. 19-20-37. Drlg.
Aloco Oil Co. No. 1 Carson, C SW SE Sec. 28-21-37. T.D. 3,560 ft.; P.B. 3,568 ft.
Bryant-Drilexco No. 2 State, SE SW SE Sec. 12-21-35 T.D. 3,756 ft.; drlg. plug.
Danglade & Clower No. 1 Owen, NW SW SW Sec. 34-21-37. Drlg. 725 ft.
Gulf Oil Corp. No. 7 McCormack, C NE SE Sec. 32-21-37. T.D. 3,765 ft.; to swb.
Gulf Oil Corp. No. 2-B Mattern, C SE NE Sec. 31-2-37. Drlg. 2,970 ft.
Gulf Oil Corp. No. 4 Ramsey, C SE SE Sec. 35-21-36. T.D. 3,860 ft.; tstg.
Magnolia Pet. Co. No. 1 Marshall, C SE NW Sec. 34-21-37. Drlg. 2,645 ft.
Francis C. Wilson No. 3 State, NW SE NE Sec. 7-21-35. T.D. 3,868 ft.; pmp. 20 gal. oil in 4 hrs.
Stanolind O. & G. Co. No. 4 Hill, C SW NE Sec. 6-21-37. Drlg. 3,417 ft.
J. C. Clower No. 1-B Manda, NE NE NW Sec. 28-22-37. T.D. 3,681 ft.; P. est. 50 B.O.P.D.; S.D.
Continental Oil Co. No. 1 State F-1A, C W½ SE NE Sec. 1-22-35. T.D. 3,829 ft.; to test natural.
Continental Oil Co. No. 5 State J-2, C SE SE Sec. 2-22-36. Loc.
Continental Oil Co. No. 5 State E-17, C W½ NW SW Sec. 17-22-36. W.O.C. 3,730 ft.
Gulf Oil Corp. No. 3-E Mattern, C NW NW Sec. 12-22-36. Drlg. 2,624 ft.
Olean Pet. Co. No. 2 Farrell, SW SE SE Sec. 22-22-37. T.D. 3,757 ft.; P.B. 3,625 ft.; 1,500 ft. O.I.H.
Skelly Oil Co. No. 7 Baker, C NW NE Sec. 27-22-37. Drlg. 1,179 ft.
Skelly Oil Co. No. 5 Simms, C NW SE Sec. 33-22-37. Drlg. 1,925 ft.
Texas Co. No. 2-B Fally, C SE SW Sec. 8-22-37. T.D. 3,720 ft.; S.&F. 20 B.O.P.D.
Texas Pacific Coal Oil No. 14-A State, C NW NE Sec. 11-26-36. Drlg. 3,400 ft.
Walter Donnelly No. 1 Davis, C SE NW Sec. 33-23-37. T.D. 3,600 ft.; F. 11 B.O.P.D.; tstg.
Great Western Prod. No. 2-B Leonard, C NW NW Sec. 32-23-37. C.&P.
Continental Oil Co. No. 4 Jack A-20, C SW NE Sec. 20-24-27. Drlg. 3,402 ft.
Continental Oil Co. No. 2 Jack B-37, C SW NE Sec. 27-24-37. W.O.C. 3,100 ft.
Humble O. & R. No. 4 Williams, C NW NW Sec. 34-24-37. Drk.
North Shore Oil Corp. No. 3 Woolworth, SW SW NW Sec. 33-24-37. Drlg. 700 ft.
North Shore Oil Corp. No. 4 Woolworth, NW NW NW Sec. 33-24-37. Loc.
Parker Drlg. Co. No. 3 Erwin, C W½ NE SW Sec. 35-24-37. T.D. 3,460 ft.; F. 10 B.O. in 8 hrs.; est. 3,000,000 cu. ft. gas.
Phillips and Pure No. 5 Woolworth, C SW SE Sec. 33-24-37. C.&P.
Phillips and Pure No. 6 Woolworth, C NE NE Sec. 33-24-37. T.D. 3,538 ft.; F. 246 B.O.P.D.; 1,000,000 cu. ft. gas.
Schermerhorn Oil Co. No. 5 Woolworth, NW SW NE Sec. 28-24-37. Drlg. 3,200 ft.
Schermerhorn Oil Co. No. 6 Woolworth, C SW SE Sec. 28-24-37. Drlg. 815 ft.
Sam Weiner No. 2 Woolworth, SW NW SW Sec. 33-24-37. T.D. 3,565 ft.; shot and C.O.
Weir Drlg. Co. No. 3 Woolworth, NE SW SW Sec. 28-24-37. Drlg. 3,083 ft.
Amerada Pet. Co. No. 1-B Stuart, NW SE NE Sec. 22-25-37. Drlg. 2,390 ft.
Anderson & Prichard No. 5 Wells, C NW NE Sec. 5-25-37. Loc.
Anderson & Prichard No. 1 Woolworth, NW NE NE Sec. 17-25-37. Drlg. 820 ft.
Culbertson & Irwin No. 3 Henry, SW SW SW Sec. 26-25-37. Drlg. 1,535 ft.
Gulf Oil Corp. No. 6 Stuart, C NW NW Sec. 11-25-37. T.D. 3,430 ft.; F. est. 140 B.O. in 11 hrs.
Italo Pet. Corp. No. 1 Carlson, SW NE NW Sec. 26-25-37. Drk.
Italo Pet. Corp. No. 1 Indian B-4, NE NW NW Sec. 4-25-37. W.O.C. 1,367 ft.
Italo Pet. Corp. No. 2-B N. M. Pet., SE SW NW Sec. 4-25-37. Drk.
Phillips and Pure No. 2 Woolworth, C SE NE Sec. 6-25-37. W.O.C. 338 ft.
Richmond Drlg. Co. No. 2-A State, C SW SW Sec. 2-25-37. Drlg. 2,675 ft.
Sam Weiner No. 3 Smith, C N½ NE SE Sec. 4-25-37. T.D. 3,506 ft.; C.O.; 3,490 ft.

Eddy County

Allen, Fair & Pope No. 1 Snowden, SE NE SE Sec. 36-17-29. Drlg. 980 ft.
Aston & Fair, Inc., No. 1 Hudson, C NE NE Sec. 18-17-31. Drlg. 2,510 ft.
W. H. Berry No. 1 Berry, NE NE NE Sec. 24-17-27. Drlg. 200 ft.
Danciger O. & R. Co. No. 1-B Turner, CEL NE SE Sec. 17-17-31. T.D. 3,530 ft.; F. 32 B.O.P.D.; may shoot.
Hammond & Sons No. 1 Ployhar-State, SW SW SE Sec. 16-17-28. Drlg. 1,610 ft.; S.S.O.
J. O. and J. H. Hammond No. 1 Paris, NE NW NW Sec. 5-17-29. S.D.O. 25 ft.
English & Harmon No. 1 Stogner, C NW SE Sec. 31-17-31. Drlg. 4,200 ft.
Flint Prod. Co. No. 1-L Dexter, SE NW SE Sec. 15-17-30. T.D. 3,466 ft.; 15 B.O.P.D.; acdg.
Jim E. Hughes No. 2 Brooks, NE SW NE Sec. 19-17-28. Abd. loc.
F. G. Keyes No. 3 Red Gulch, NW NW NE Sec. 16-17-28. Drlg. 1,720 ft.
Ohio Oil Co. No. 4 State-McCallister, Sec. 25-17-34. W.O.C. 510 ft.
C. S. Powell No. 1 Smith, NW NW NE Sec. 6-17-29. T.D. 2,500 ft.; S.D. rprs.
Red Lake Oil Co. No. 1 State, NE NE SE Sec. 20-17-28. T.D. 1,970 ft.; F. 50 B.O.P.D.
Repollo Oil Co. No. 5-A Parke, NW NE NW Sec. 22-17-30. R.U. mch.
H. J. Steinberger No. 1 Hastie, SE NE SW Sec. 18-17-38. T.D. 555 ft.; S.D.
Adkinson Oil Co. No. 1 Brainard, SE SW SE Sec. 5-18-27. Drlg. 1,438 ft.
Barney Cockburn No. 1 State-Graham, C NE NE Sec. 16-18-31. Drk.
Farmer & Talimadge No. 1 Hubbell, NE SW Sec. 4-18-25. T.D. 400 ft.; fsg. bit.
Franklin Pet. Corp. No. 1 Ballard, NE NE SE Sec. 1-18-29. Rng. csg. 2,690 ft.

GOTT WATER COOLER
Made in 3, 5, 8, 10, and 20 gallon sizes.

Gotkoo!
WATER CANS & COOLERS

GOTT Water Coolers are the convenient way to keep drinking water handy to the worker, protect it from impurities. Their exclusive construction keeps water cool for long periods. Snug fitting large removable top, handy non-leaking push button faucet. GOTT Water Cans for handy field use. Your Supply Store has them, get one today! . . . . . .

GOTT WATER CAN
Made in 1½, 3, 5, and 10 gallon sizes.

H. P. GOTT MFG. CO.
WINFIELD, KANSAS
KEEP PURE DRINKING WATER ALWAYS HANDY

DODGE BEARINGS
KEEP Power ON THE MOVE!

IN the oil fields... where power must be kept on the move to assure uninterrupted performance... Dodge-Timken Bearings are widely used because they are "rugged" and stand-up to this gruelling service... For normal or heavy work.. for excessive dust or water conditions.. there is a Dodge-Timken Bearing which will most dependably cope with the particular assignment... Specify Dodge..it means high quality backed by specialized engineering.

Let us send you a copy of bulletin A-321 . . . Also see the Dodge 20-page section in the Oil Field Composite Catalog.

DODGE MANUFACTURING CORPORATION
MISHAWAKA, INDIANA, U. S. A.

DODGE
MISHAWAKA
THE Right Drive FOR EVERY JOB

Franklin Pet. Corp. No. 1 Canfield, C NW NW Sec. 7-18-30. C.&P.
Green Bay Oil No. 1-A Johnson, C SE SE Sec. 11-18-31. T.D. 3,562 ft.; W.O.C.
Harvey E. Yates No. 1 Travis, NE SE SE Sec. 6-18-29. S.D. repairs 2,210 ft.
H. W. Martin No. 1 Gates, SW SW SE Sec. 15-18-30. Loc.
Martin Yates No. 1 Saunders, NE NE NE Sec. 12-18-29. M.I. spudder.
Carper Drlg. Co. No. 1 Quillen, C NW NE Sec. 12-19-31. S.D.O. 2,765 ft.
Geo. E. Robb No. 1 Cannon, C SW SE Sec. 4-19-30. T.D. 210 ft.; S.D.O.
Geo. E. Robb No. 1 Vandagriff, SW NE Sec. 6-19-31. T.D. 800 ft.; S.D.O.
R. C. Underwood No. 1 Quillen-Bruce, NE NE SE Sec. 4-19-31. Drlg. 3,130 ft.
Martin Yates, Jr., No. 1 Bowers, SW SE SE Sec. 31-19-27. T.D. 1,180 ft.; est. 25-40 B.O.P.D.; tstg.
Trojan Oil Co. No. 1 Grant, SW SW NE Sec. 33-20s-25e. S.D.O. 408 ft.
C. F. Ingram No. 1 Page, NE NE SW Sec. 15-21-28. T.D. 2,978 ft.; fsg.
Barnett Oil Dev. Co. No. 1 King, C NW SE Sec. 23-26-30. Drlg. 2,270 ft.

Chaves County

Nay Hightower No. 1 Billingslea, C SW NE Sec. 28-11-30. Drlg. 3,001 ft.
E. J. Fisher No. 1 Foster, C NW NW Sec. 7-15-26. T.D. 1,281 ft.; S.D.O.
New, Russell & Wood No. 1 Sterrett (wildcat), NW SE NW Sec. 29-11-25. R.U. mch.
Tarkenton Bros. No. 1 Peters, SE SE SE Sec. 33-11-25. R.U.R.
Western Minerals, Inc., No. 1 Dow (wildcat), C SW NW Sec. 27-10-30. Loc.

De Baca County

N. E. Woods No. 1 Jones, C NE SW Sec. 17-4n-20. T.D. 620 ft.; S.D. repairs.
James D. Ward No. 1 Summers, SE NE SW Sec. 15-4n-24e. T.D. 680 ft.; S.D.O.

Roosevelt County

Shell Pet. Corp. No. 1 Harwood, C S½ SE SE Sec. 27-7s-35e. Cg. L. 6,157 ft.

NORTHWEST NEW MEXICO

Bernalillo County

Norins Realty Co., Inc., No. 2 Pajarito, Sec. 22-9n-1e. S.D. 1,100 ft.

Rio Arriba County

Oil City Petroleum Co. No. 2 Wirt-Sanchez, C Section 12-31n-2e, Axotea district, had the top of the Dakota at 478 feet and was dry and abandoned. Rig will be moved to opposite side of fault.

San Juan County

Continental Oil Co. No. 87 Rattlesnake, CEL NW NE Section 2-29n-19w, Rattlesnake pool, was completed in the Dakota at 766 feet, total depth, for 22 bbls. per day.

Continental Oil Co. No. 88 Rattlesnake, CNL NE NE Sec. 2-29n-19w. M.L.M.; (first report).
Jack Amenda No. 1 Schenck, NE NE Sec. 14-29n-13w Drlg. 650 ft.

COLORADO

Archuleta County

Scouts for several companies are checking on a report that the Axelind Oil Co. found a showing of oil in the first sand of the Dakota series in a wildcat approximately 3½ miles southwest of the William E. Hughes Estate Gramps pool. So far confirmation has not been obtained. The well is in a district where communication is difficult due to high and rough country with approximately 5 feet of snow on the ground. It was last reported drilling below 700 feet. This was in December. The rumor says that the oil was found at around 2,200 feet and that casing will have to be run, but that on account of road conditions it will be nearly impossible to move in a string at present. The location of the well probably is in the NE NW Section 12-32n-2e, or the NE Section 11. Pending further information the rumor is reported as received from several sources.

Boulder County

Reynolds & Roher No. 1 Thomas, SW SW Sec. 17-1n-70w. S.D. 1,065 ft.; acct. weather.

La Plata County

N. Spatter No. 1-X Bryce, SE SW SW Sec. 31-33n-9w. Drlg. 2,315 ft. in blk. L.; top 2,307 ft.

Logan County

West Plains Development Co. No. 1 Sheldon, West Plains district, which has been shut down for several weeks after spudding to 190 feet in a 20-inch hole, resumed drilling February 18 and is making hole below 200 feet. There is quite a little interest in this well because it will test the Dakota series in a new area to the north of the wildcat play several years ago.

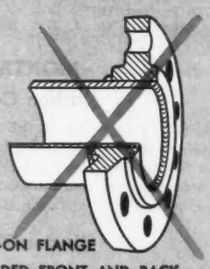
West Plains Dev. Co. No. 1 Sheldon, SE NW SW Sec. 3-10n-55w. Drlg. below 200 ft.

Moffat County

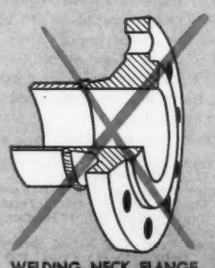
The Mountain Fuel Supply Co. No. 1 Florence Wilson, the discovery well for gas in the Hiawatha field, which is being deepened to test out the extent of the

MIDWEST VAN STONE WELDING NIPPLE makes the *ideal* flanged joint for welded piping systems

SCREWED AND WELDED FLANGE



SLIP-ON FLANGE
WELDED FRONT AND BACK

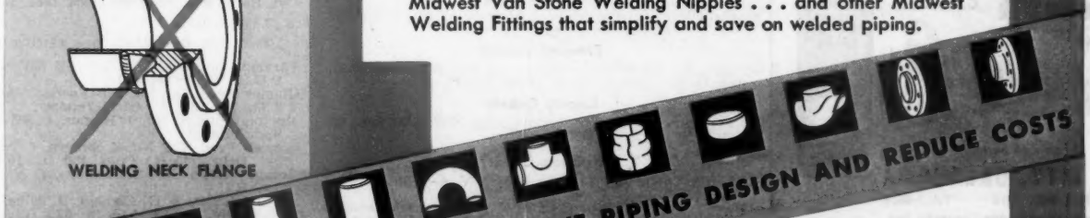


WELDING NECK FLANGE

For making connections to boilers, pumps, valves and other flanged outlets (and where piping must be frequently cleaned or inspected for corrosion), Midwest Van Stone Welding Nipples have a tremendous advantage over flanges that are welded to the pipe (see drawings at left). The swivel flange of the Nipple makes it unnecessary to accurately line up the bolt holes before welding; "setting up" is simple and quick because no special clamps or jigs are required to hold the face of the flange absolutely perpendicular to the axis of the pipe. The result is a real saving in time and cost of welding.

Another important economy is in erection. Field organizations report a saving of 25% in erection time for making up a joint using Midwest Van Stone Welding Nipple in comparison with flanges rigidly fixed to the pipe; this saving is even greater when the flanges are on bends.

Ask for Bulletin WF-36 which gives complete data regarding Midwest Van Stone Welding Nipples . . . and other Midwest Welding Fittings that simplify and save on welded piping.



MIDWEST WELDING FITTINGS IMPROVE PIPING DESIGN AND REDUCE COSTS

MIDWEST
PIPING & SUPPLY COMPANY, Inc.
Main Office: 1450 So. Second St., St. Louis, Mo.

Plants: St. Louis, Passaic (N. J.) and Los Angeles • Sales Offices: Chicago—946 Marquette Bldg. • Houston—1716 Second National Bank Bldg. • Los Angeles—520 Anderson St. • New York—(Eastern Division) 30 Church St. Tulsa—533 Mayo Bldg.

Sand and sediment clogged wells mean lower production. Clean-Out with a MILLER Sand Pump— *increase production.*

The MILLER is made in diameters of 2½, 3, 3½, 4, 4½, 5, 5½, 7 and 9 inches and lengths of 20, 25 and 30 feet. 5/32-inch wall thickness in REGULAR Type. ¼-inch wall tubes in HEAVY Type Sand Pumps.

INTERCHANGEABLE BOTTOMS
To Meet Every Condition

- **BAILER BOTTOM** — With the Bailer Bottom installed the MILLER is quickly changed to a Bailer giving you a combination of either Bailer or a Sand Pump in one tool.
- **SAND BOTTOM** — Used when tools are run and when well is shot to quickly remove loose material.
- **STAR BOTTOM** — Used for cutting the sand loose.
- **CHISEL BOTTOM (In Pump)** — With this bottom tightly packed sand can be easily broken in small pieces so it can be picked up in the pump.

Write for Descriptive Folder and Price List

See Pages 1564-65 COMPOSITE CATALOG

MILLER ALSO DRILLING EQUIPMENT CATALOG

Sand Pump Co.

General Offices and Factory

OKLAHOMA CITY, OKLAHOMA

1524 S. E. 29th · P. O. BOX 4516 · Tel. 7-6884

Branches SAPULPA, OKLA. Tel. 341 · KILGORE, TEX. Tel. 345 · HOUSTON, TEX. Tel. PRESTON 2841

PATENTED NO. 1370340 NO. 1523604 NO. 1787380 NO. 1862818 NO. 1866628 NO. 2055667

FOR SALE BY ALL SUPPLY STORES

BUILD
at
LOW COST
MIDGET CRACKING PLANTS
Immediate Delivery
of
Complete Manufacturing and Construction Drawings along with Specifications and Bills of Materials.

Inquiries on other Refinery Processes, Engineering and Design invited.

STEPHEN SWARTZ
9023 S. LOOMIS ST. CHICAGO, ILL.

oil sand found in No. 1 Kuykendall, is bottomed at 2,451 feet and testing. It is reported to have drilled a saturated sand at 2,418-50 feet, believed to be the sand found at 2,472-84 feet in the Kuykendall well, which averaged 85 bbls. a day for 60 days. No. 1 Wilson is being deepened from 2,232 feet. It was originally completed in 1926 at 2,220 feet for 45,000,000 cu. ft. of gas per day.

Mountain Fuel Supply Co. No. 1 Wilson, NE NW NE Sec. 22-12n-100. T.D. 2,451 ft.; tstg.
C. R. Privett No. 1 Sutton, NE NE SW Sec. 1-5n-96w. S.D. 1,145 ft.; U.R. lug in hole.
Mackinnie Oil & Drlg. Co. No. 1 Coles, SW SW SE Sec. 1-3n-92w. T.D. 3,075 ft.; C.O.

Montezuma County

McElmo Oil Co. No. 1 West, NE NW NE Sec. 31-36n-17w. T.D. 4,947 ft.; fsg. bit.

Park Count

South Park Oil Co. No. 1 Leman, NE NE SE Sec. 34-11s-75w. Drlg. 6,825 ft.

Prowers County

The Continental Oil Co. No. 1 Rosabel Ruby, C NE NW Section 31-21s-44w, a test on the Cottonwood structure, had a hole full of water in the Arbuckle lime at 5,860 feet, total depth, and is plugging to abandon. It had the top of the siliceous lime at 5,580 feet. Other tops are: Greenhorn lime, 165 feet; Dakota, 380 feet; Morrison, 783 feet; Exter, 1,220 feet; Day Creek, 1,359 feet; Blaine, 1,612 feet; Pennsylvanian, 3,095 feet; Mississippian, 5,050 feet; Viola, 5,250 feet. Elevation is 3,756 feet. It was drilled to 5,434 feet with rotary tools where considerable difficulty was encountered. At that point the company took over the contract and completed the test with cable tools.

Pueblo County

C. E. Puckett No. 1 Barber, NW Sec. 35-21s-66w. S.D. 870 ft. for csg.
Eden O. & G. Co. No. 1 Horse Creek, SW SE Sec. 29-19s-64w. T.D. 2,060 ft.; failed to get W.S.O.; M.I. string of 4⅞-in. to run and carry.

Rio Blanco County

Buford Oil Co. No. 1 Govt., C SW SW Sec. 16-1n-91w. S.D. 3,645 ft. until spring.

WYOMING

Albany County

Correction on location of G. R. McConnell test in North Big Hollow puts it one-fourth of a mile southwest of the discovery, which was completed in 1937 for 25 bbls. per day, estimated, from the Muddy sand at 890-920 feet. Also correction is made in operator and farm name.

J. L. Gaylord-G. R. McConnell No. 1 Fuller, NW NE NW Sec. 7-15n-75w. Drlg. 926 ft.

Big Horn County

Clifford S. Johnson No. 1 Johnson, CEL NW NW Sec. 24-51n-93w. Drlg. 520 ft.
Joan Oil Co. No. 1 Howell, NE NW NE Sec. 32-55n-97w. S.D. 2,718 ft.

Carbon County

Sinclair-Wyo. Oil Co. No. 2-A Mahoney Unit, C SW NE Sec. 34-26n-88w. Drlg. sh. 4,005 ft.

Fremont County

H. Kenyon Burch No. 9 Tribal, C NW NW Sec. 27-3n-1w. Drlg. 1,000 ft.; D.D. from 730 ft.

Lincoln County

H. C. Harris et al No. 1 Govt., SE NW NW Sec. 23-21n-117w. Drlg. 1,355 ft.

Natrona County

Richland Corp. No. 1 State, SW NW Sec. 36-36n-81w. R.U.C.T.
General Pet. Corp. No. 1 State, NW NE SE Sec. 16-35n-77w. Cg. 8,521 ft. in upper Sundance form.; base Morrison approx. 8,370 ft.

Niobrara County

The Ohio Oil Co. No. 8 Converse Sheep, NW SE SW Section 32-36n-65w, which is located on the apex of the Lance Creek structure, and which was completed a year ago as a gas well in the Leo sand at 4,934-94 feet, has been turned into an oil well as a result of working over and acidizing. Originally it made 1,500,000 cu. ft. of gas per day with no oil in either the Leo or Sundance. After acidizing with a total of 15,000 gallons, it flowed 186 bbls. in 24 hours on February 23 with approximately 2,000,000 cu. ft. of gas.

The Continental Oil Co. No. 14 Tom Bell Cattle, C NW SW Section 34-36n-65w, for the account of the Buck Creek Oil Co., was completed at 3,976 feet, total depth, from the Sundance sand at 3,966-74 feet, for 316 bbls. the first 24 hours. Rotary table elevation is 4,359 feet. It is an inside well.

The Adams Oil & Gas Co.-Felmont Corp. No. 1 Baker, NW NE SW Section 8-35n-65w, which has been testing for several weeks, was listed as a completion this week in the Leo sand at 5,606-36 feet for 162 bbls per day. It marks an extension of the Leo sand pool.

The Continental Oil Co. released a location for its No. 3-B Dielman, a north offset to the Adams No. 1 Baker. It is in the Leo sand proven area, but outside of the unit area of the Sundance sand pool.

The Ohio Oil Co. has gone back in its No. 3 Agnes Rohlff, in Section 32, and will deepen it from the Sundance to the Leo sand. It was completed in May, 1936, at 3,958 feet, total depth, for 175 bbls. natural initial production.

The Cow Gulch Oil Co. No. 1 McGoon, NE NE SW Section 33-35n-64w, a wildcat on Young Woman Creek, east of Lance Creek, was plugged and abandoned at 2,153 feet after testing all horizons down to the Bell sand. It had water at 2,134-53 feet. Top of the red beds was at 808 feet, and the Leo sand was at 2,033 75 feet.

Ohio Oil Co. No. 3 Agnes Rohlff, C SE NE Sec. 32-36n 65w. T.D. 3,958 ft.; M.I.R. to dpn. to Leo sd.
Continental Oil Co. No. 3-B Dielman, SW SE NW Sec. 8-35n-65w. C.&P.; (first report).
Ohio Oil Co. No. 11 Putnam, SE SE SW Sec. 33-36n-65w. Loc.
Continental Oil Co. No. 2 E. Rohlff, NW SE NW Sec. 32-36n-65w. T.D. 345 ft.; cmtd. 13⅜-in. 306 ft.
Minneluss Oil Corp. No. 2 Joss, SE NE SW Sec. 6-35n-65w. T.D. 3,989 ft.; W.O. equip.
Minneluss Oil Corp. No. 1 H. & M.-5, NW NE SE Sec. 7-35n-65w. Cmtd. 13⅜-in. 300 ft.; W.O.C.
Argo Oil Co. No. 3 Ford, SW SW NW Sec. 33-36n-65w. Drlg. r.b. 4,730 ft.
Ohio Oil Co. No. 5 Rohlff, 100 ft. E of C E½ Sec. 32 36n-65w. Cg. 3,611 ft.; top Muddy 2,971 ft.; Dakota 3,133 ft.
F. F. Hintze et al No. 1 Wright-Govt., C NW SE Sec. 30-36n-63w. Reported drlg. 4,550 ft. in Lakota; gas in Muddy at 4,160 ft.
Fall River Roy. & Prod. Co. No. 1 Govt., CSL SE SE Sec. 35-40n-61w. T.D. 1,000 ft.; fsg. bailer.

Sweetwater County

Sinclair-Wyo. Oil Co. No. 82, NE SW SW Sec. 11-26n-90w. Cg. 2,098 ft. sat. Sundance sd.; top sat. 1,962 ft.

Uinta County

Stove Creek Oil Co. No. 2 Govt., C SW NW Sec. 26-14n-119w. Drlg. 680 ft.

Weston County

Whedon et al No. 1, C SW NE Sec. 21-46n-64w. T.D. 3,775 ft.; fsg. D.P.
Lem Johnston No. 1, NW SW Sec. 24-44n-63w. Drlg. 1,950 ft.; carrying 8¼-in.

MONTANA

Carbon County

R. C. Tarrant No. 2, SE NW Section 4-6s-18e, a wildcat on the Roscoe dome, had a good show of heavy oil in the Dakota, the fluid rising 700 feet in the hole, but hole was too small to drill on down to the light oil sands and was abandoned at 3,130 feet.

Glacier County

The Glacier Production Co. had a good completion in Cut Bank in its No. 5 State, C NW NW Section 16-35n-5w, which swabbed 275 bbls. the first 10 hours at 2,905 feet, total depth, after running underdigger. It had a slight show of oil in the Sunburst at 2,806-31 feet. Upper Cut Bank at 2,832-75 feet was dry. Lower Cut Bank was at 2,894-2,904 feet. Seven-inch was set at 2,887 feet.

Two new operations are getting under way.

Tarrant-Long No. 7 Miller, NE SW NE Sec. 24-34n-6w. R.O.G.; (first report).
Glacier Prod. Co. No. 1 Bliesener Unit, SE SE NE Sec. 3-33n-5w. M.I.M.; (first report).
Morton-Cloutier No. 1 Hagan, C SE SE Sec. 5-31n-7w Spdg. 100 ft.
Glacier Prod. Co. No. 4 Simero, C NE NW Sec. 5-33n-5w. Drlg. 745 ft.; Colo. 400 ft.; 10¾-in. 420 ft.
Yukon Oil Co. No. 2 Lungren, C NE NW Sec. 26-37n-5w. R.U.
Santa Rita O. & G. Co. No. 9 Tribal, NE SE NE Sec. 16-35n-6w. Cmtd. 10¾-in. 625 ft.; Colo. 593 ft.
Wm. Hanlon No. 4 All-128, SW SE NE Sec. 12-32n-6w. Drlg. 930 ft.; Colo. 570 ft.; 10¾-in. 594 ft.
Glacier Prod. Co. No. 2 Scheuren, C SW SW Sec. 20-33n-5w. Drlg. 2,190 ft.

Petroleum County

Watson Oil Co. No. 1 Austed, SW NW SE Sec. 22-13n-28e. T.D. 1,160 ft.; landed 10-in. on bttm.; prep. to drill ahead.
H. Clark Rowland No. 1 Brundidge-Mink, SE NW Sec. 35-14n-25e. S.D. 280 ft.

Teton County

Zodiac Oil Co.-Gulf States Oil Co. No. 1 Kellogg, NE NW NE Sec. 33-28n-5w. S.D. 2,165 ft.
Gulf States Oil-Zodiac Oil Co. No. 1 Coffee-Wallenstein, SW SW SW Sec. 5-27-5w. S.D. 2,525 ft. until spring.

Toole County

Kevin-Sunburst had one completion in Sid Porter No. 1 Bradley, SE cor. Section 3-34n-2w, which pumped 15 bbls. of oil and 35 bbls. of water per day from the contact at 1,515 feet, which is also the total depth.

W. M. Cassidy No. 1 Phoenix, in West Kevin, which attempted a squeeze job, is shut down after the cement failed to hold.

Big West Oil Co. No. 10 Gunderson, 1,980 ft. from WL and 1,100 ft. from NL, Sec. 19-35n-2w. Drlg. 1,035 ft.
Fulton-Commonwealth No. 2 Thompson, SE NW SE Sec. 28-35n-3w. Drlg. 300 ft.
G. M. Plotke No. 2 Ward, SW cor. Sec. 28-35n-3w. Drlg. 700 ft.

(Continued on Page 111)

Texas and Louisiana Gulf

By
NEIL WILLIAMS

New Sand in Satsuma Pool; West Ranch Field Extended

HOUSTON, Tex., Mar. 6.—What may be a new producing horizon flanking the north side of the Satsuma field, Harris County, was opened as H. E. Williams and F. A. Gillespie cemented 5½-inch casing on bottom at 6,864 feet in No. 1 Leo T. Bechne following a nine-minute drill-stem test at 6,853-62 feet, which recovered 21 stands of 40-gravity oil. The well is one-half mile north of production in the W.C. R.R. Survey and was generally regarded as a dry hole after it failed to find saturation in the regular Satsuma sand at approximately 6,812-34 feet. The new sand is below the water level of the field and corresponds with that of the Fairbanks field, 2½ miles northeast which produces from the lower Yegua at 6,827-6,900 feet. Recent developments in the latter field have uncovered a lenticular sand condition around the edges of the field proper and it is possible that this same condition exists at Satsuma as the two structures are associated with each other although production is separated by a dry hole recently drilled midway between the two fields.

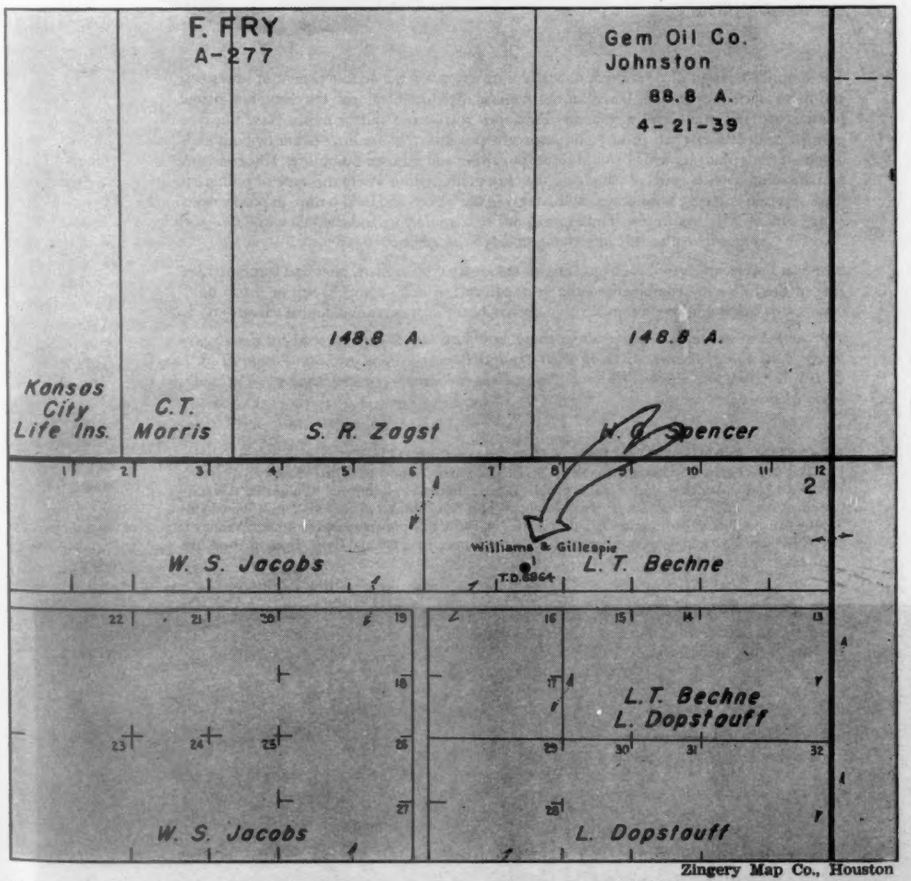
Prospects of opening the first oil production in the Goodykoontz gas area, 2 miles northeast of Fairbanks were not encouraging as Kirby Petroleum Co. No. 1 C. H. Daniel, 6,000 feet northeast of Union Producing Co. No. 1 Goodykoontz, a gas well, tested gas and brackish water through perforated casing at 7,237-39 feet. The well has been killed and the perforations squeezed off preparatory to retesting. The hole is bottomed in salt water sand at 7,252 feet, and casing was cemented after 21½ feet of oil sand was cored at 7,227-48½ feet. It is possible that the salt water came from a faulty cement job or the casing was perforated too high.

On the Caplen prospect, Galveston County, Sun Oil Co. was preparing to test No. 2 Cade in the A. Dickson Survey. The hole is bottomed at 8,009 feet, and 9⅝-inch casing was cemented on bottom. A cement retainer was set at 7,562 feet and the well is expected to be tested at intervals from 8,200 to 7,320 feet where a recent electrical survey showed sands with favorable possibilities.

Two interesting wildcat locations were announced for Brazoria County. On the Iowa Colony prospect, Housh & Thompson staked location for No. 1 Lula Allen in the center of the west 10 acres of a 20-acre tract in the Kate R. Ehrmann Survey No. 72. The location places the well about 1¼ miles northeast of Humble Oil & Refining Co. No. 1 Tuttle, a recently completed dry hole. Northwest of the Sandy Point field and 2 miles south of Juliff, Hamman Exploration Co. is moving in material for a Frio test on the Darrington State Farm in the Achilles McFarland Survey. Location was staked 1,395 feet from the north line and 1,400 feet from the west line of an 821.75-acre lease.

The West Ranch field, Jackson County, was extended 1,320 feet west with the completion of Magnolia Petroleum Co. No. 8-A West Ranch which flowed 198 bbls. daily through a three-sixteenths inch choke under a tubing pressure of 400 pounds and casing pressure 850 pounds. In the same county and located 5,000 feet southeast of the Francitas field, Crosby Drilling Co. has derrick up for No. 1 L. Kopnisky in the center of Lots 35 and 36, Block 3, Schwind and Maher first subdivision in the P. Green Survey.

Development of the League City field, Galveston County, continues disappointing. Phillips Petroleum Co. No. 1 Brittnacher, 1 mile northeast of the discovery well, is running an electrical survey after drilling into salt water sand at 9,217 feet. Offsetting the discovery well to the north, the same company's No. 1 J. C. Ott perforated casing at 9,245-63 feet, and flowed for six hours through various chokes, making a small amount of oil and salt water. It is scheduled to be retested during the week. Northeast of present production, No. 1 Dr. Patton flowed 4 bbls. of fluid per hour through a five-sixteenths inch choke of which 10 per cent was oil and 90 per cent salt water. The hole is bottomed at 10,535 feet and the well is testing through perforated casing at 9,180-83 feet.



Zingery Map Co., Houston

Williams & Gillespie No. 1 L. T. Bechne, north of Satsuma field, Harris County, which is testing a new horizon

South Louisiana

Operations along the Louisiana coast were comparatively quiet the past week, although several wildcats had reached critical depths and reports of several others being started were announced.

Probably the most interesting test drilling in the district is Vendome Petroleum Co. No. 1 Kenilworth Plantation, Section 59-13s-14e, St. Bernard Parish. Nine and five-eighths inch casing was cemented last week at 10,809 feet, and the well is coring ahead, after logging additional showings of gas in a sandy shale section at 10,880-10,900 feet. The well is looked upon as a possible pool opener, as approximately 68 feet of sand showing favorable indication was logged by an electrical survey at 10,597-10,650 feet.

In the Golden Meadows area, La Fourche Parish, Texas Co. No. 1 State-Catfish Lake, Section 77-19s-21e, is bottomed at 10,224 feet and an electrical survey was being made. The same company's No. 1 L. L. & E. Golden Meadows is drilling in sandy shale below 10,744 feet. Both wells are considerable deeper than the company's discovery well which was completed at the close of last year at 8,500-10 feet.

Location for a deep test on the China prospect, Jefferson Davis Parish, was announced by Union Sulphur Co. for No. 1 H. B. Tietje, Section 36-7s-4w. The test is located on a block of several thousand acres assembled several months ago, and has been worked extensively with geophysical instruments. The area is located several miles west of the South Elton field where Stanolind Oil & Gas Co. developed distillate production.

Approximately 2 miles north of Elton, Section 22-6s-3w, Allen Parish, it is reported that a deep test is planned to be drilled on the J. A. Bel estate. The area has been worked extensively with geophysical instruments by Humble Oil & Refining Co., Sun Oil Co., Magnolia Petroleum Co. and these companies hold considerable protection acreage in the area.

Northeast of the town of Merryville and located on the highly regarded Sparta-Wilcox trend, Beauregard Parish, Atlantic Refining Co. made tentative location for No. 1 Lutcher Moore Lumber Co. in Section 22-3s-11w, in the center of a block of approximately 6,000 acres. Locations recently made along this trend have become active and drilling is expected to be started on two Wilcox sand (Tertiary) tests in Rapides and Pointe Coupee parishes. Gulf States Exploration Co. is building derrick for No. 1 Erwin & Bishop, Sec-

(Continued on Page 102)

YOU GET IMPROVED QUALITY AT LOWER COST WITH THIS NEW AXELSON *SURE-SEAL* PUMP

The new Axelson Pin Type Plunger Construction eliminates hazards of damage to chromium plating.

The simplified design of Axelson Sure-Seal Pumps gives you the double benefit of lower cost and more efficient operation. Based on the Axelson metal-to-metal seal, the chromium-plated plunger operates in a barrel tube accurately honed to size and mirror finish. New pin type plunger construction (pat. pend.) eliminates the possibility of swelling either or both ends of close fitting plungers which would result in galling and reduced pump life. This construction also eliminates hazards of damaging the chromium plating where this type of plunger is used. Axelson cup-type hold-downs seat snugly in old barrels and hold pumps in proper operating position. All parts are tested many times during manufacture and checked with "Go" and "No Go" gauges to assure full interchangeability in assembly.

Sure-Seal Pumps are available in traveling or stationary type in many sizes and combinations. Any of the following combinations can be used: anchor hold-downs, 2-cup or 3-cup hold-downs, top-lock hold-downs, top-cup hold-downs, heavy duty cages and double valves.

Ask your Axelson representative about these new Sure-Seal Pumps or send for description. *Axelson's 3 complete lines of Deep Well Plunger Pumps—Standard Liner Pumps (T. S. L. & R. S. L.), Sure-Seal Pumps, Kup-Pak Pumps—are built to meet every pumping condition in every price range.*

AXELSON MANUFACTURING CO.
P.O. Box 98, Vernon Station, Los Angeles • St. Louis • 50 Church St., New York • Tulsa • Mid-Continent and Eastern Distributor: Frick-Reid Supply Corp. • Rocky Mountain Distributor: Great Northern Tool & Supply Co. • Foreign Representatives: "COSMOS" Soc. in Nume Colectiv, Bucharest, Roumania • Direct Factory Representative, Bucharest, Roumania • Industrial Agencies, Ltd., San Fernando, Trinidad, British West Indies • Factory Representative, Maracaibo, Venezuela • Armco International Corp., Buenos Aires, Arg.

THERE IS NO ECONOMICAL SUBSTITUTE FOR QUALITY

WRITE TODAY for a copy of this 62-page book that tells how Axelson Sucker Rods are made and why.

Eastern Field Report

By STAFF CORRESPONDENT

Two Oriskany Gas Wells Add 15,000,000 Cu. Ft. Reserve

PITTSBURGH, Pa., Mar. 1. — Both deep tests on Chestnut Ridge, Fayette County, Pennsylvania, are showing additional gas, but neither has struck the larger gas pays in the Onondaga lime present in No. 2 Heyn and No. 1 Piedmont Coal Co. The test of the New Penn Development Co., William E. Snee and others on the Indian Creek Coal & Coke Co. William Johnson warrant in South Union Township is drilling at 7,031 feet while producing 1,250,000 cu. ft. of gas per day. It is 106 feet in the cherty zone of the Onondaga, with the first gas at 6,960 feet and 260,000 cu. ft. a day at 6,965 feet. The largest pay to date was at 7,030 feet, 500,000 cu. ft. a day. The Onondaga is expected to be about 185 feet thick at this point, with the last 16 feet softer, and carrying shale, which in the rotary test on the Piedmont Coal Co. was believed to carry one of the larger gas pays.

In North Union Township, on the Chestnut Ridge structure, Wasson & Co. and others are drilling at 7,059 feet on the J. H. Sorg farm while producing over 700,000 cu. ft. of gas per day. The first gas was at 6,963 feet, with the largest increase at 7,027 feet. This test is 134 feet in the Onondaga lime, which appears softer than in the other tests on the structure.

In the six tests which have drilled in or through the Onondaga lime, a peculiarity exists that none of the hard places and subsequent gas pays can be correlated to produce any conformity with each other. All appear different. The belief is now more pronounced that all so far drilled have ended on the subsea east flank of the Lower Devonian with the test on the Piedmont Coal Co. the highest up that flank.

SOUTHEAST OHIO

In Licking County, Ohio, Allen Willey completed No. 1 Homer Van Wey in Newton Township at a total depth of 2,540 feet, Clinton sand, and it gauges 6,000,000 cu. ft. of gas per day.

In Newark Township, Licking County, J. T. Bebout completed a gasser on the Charles Haughn farm in the lime at a depth of 2,170 feet, gauging 1,000,000 cu. ft. a day. In Section 15, Perry Township, Licking County, William Stricker and others second test on the James B. Murphy farm, in Berea sand at 770 feet, is a gas well gauging 30,000 cu. ft. a day.

In Medina County, E. R. Edson & Son Co. completed No. 42 W. H. Ripley, Section 13, Chatham Township, in Berea grit at 489 feet, and it produced 12 bbls. of oil the first day after shot. This was core drilled through the sand and cores have been sent to the laboratory to determine whether or not this can be successfully water flooded.

In Muskingum County, Gas Producing Co. of Ohio drilled a test on the George Rutledge farm in Section 18, Harrison Township, through Clinton and Medina sands to 4,425 feet. It was a dry hole.

In Perry County, the Kissling Drilling Co. completed No. 3 Bringardner and Conkle lease in Section 11, Jackson Township, in Berea grit at 752 feet. It is a gas well gauging 65,000 cu. ft. a day.

In Washington County, the Witag Oil Co. test on the George H. Remeley, Jr., farm, Section 18, Fairfield Township, was completed in Squaw sand at 1,359 feet. It produced 3 bbls. the first day after shot along with 165,000 cu. ft. of gas. Near Layman, in Section 1, same township, the Ohio Fuel Gas Co. completed No. 5 Bartley E. Walsh in the second Berea sand at 1,792 feet as a gas well gauging 168,000 cu. ft. a day.

SOUTHWEST PENNSYLVANIA

One gas well and one dry hole were reported from Southwest Pennsylvania. In Fayette County, Bortz & White completed the test on the Mike Yunoski farm in German Township at a total depth of 3,300 feet, or the Speechley horizon, of which there was but a trace. It was plugged to the Fifth sand topped at 2,340 feet, which has a volume of 300,000 cu. ft. a day.

In Menallen Township, Fayette County, Carl White and others are drilling on the Pollock farm and had reached 1,868 feet, with a showing of 1,300,000 cu. ft. a day in the Big Injun sand, which after it was cased was exhausted. The Nolem Oil & Gas Co. is drilling at 850 feet on the Jesse Frost farm and building a rig on the Andy Manyak farm.

In Allegheny County, Young Brothers drilled a test on the James Sturgeon farm, in North Fayette Township, to 2,302 feet with the Fifth sand at 2,269-96 feet, which was dry. In this county J. S. Wally had reached 1,875 feet on the Wilson Shaw farm in Shaler Township and Price Brothers have a rig standing on the J. L. Kirk farm, same township.

In Washington County, Manufacturers Light & Heat Co. made a location for No. 4 R. W. Parkinson, in Morris Township.

In Amwell Township, A. V. Lewis and others are rigging up on the William Dodds farm. In Hopewell Township, McFadden & Co. are drilling at 1,185 feet on the J. W. Reed farm with 80,000 cu. ft. of gas showing, having a rock pressure of 151 pounds.

Greene County

In Morris Township, Greene County, C. H. McVay and others are drilling at 2,900 feet on the Elmas Loughman farm with the Gantz sand at 2,865-96 feet and an oil show at 2,869 feet. O. I. Dille and others are drilling at 1,400 feet on the Ellsworth Beckman farm.

In Monongahela Township, Brummage and others are drilling at 2,454 feet deepening the test on the S. G. Durr farm. In Franklin Township, J. B. Myers and others reached 1,635 feet on the Sallie Morris farm and shut down to cement a cave. In Richhill Township, Burleigh Wright is spudding on the Strawn heirs farm.

Deep Tests

In Armstrong County, the deep test of the Peoples Natural Gas Co. on the Lowry Martin farm in Wayne Township is drilling at 1,368 feet. In Fayette County, the crew on the L. J. Houze Convex Glass Co. test on the Paul Dunham farm in Springhill Township north of Wymps Gap is still fishing for the line and tools lost at 7,625 feet. Nearly 2,000 feet of the line has been recovered and the tools have been moved up the hole 65 feet.

WEST VIRGINIA

Two small producers were completed in West Virginia during the week. In Pleasants County, G. S. M. Powell Farm Oil Co. completed the second test on the G. S. M. Powell farm in Jefferson district in the Squaw sand at 1,925 feet and it is showing for 10 bbls. a day.

In Roane County, O. H. Reed and others completed No. 4 or second test on the 20-acre P. V. Litton Tract 2 in Harper district in the Salt sand topped at 1,741 feet with a total depth of 1,767 feet. After a 30-quart shot, it is good for 2 bbls. a day.

Gas Wells

In Cabell County, Elkins Gas Co. completed a gas well on the Leonard Paugh tract in McComas district at 3,539 feet. The gauge 12 hours after shot from the Brown shale at 3,410-3,539 feet was 260,000 cu. ft. per day.

In Clay County Pittsburgh & West Virginia Gas Co. completed No. 7660 on the D. O. Sirkey farm in Buffalo district as a gas well at 1,856 feet. Big Injun at 1,750-1,855 feet yielded 340,000 cu. ft. of gas a day. In Gilmer County this company completed No. 7665 on the A. L. Cottrill farm in Glenville as a gas well in the Big Injun, total depth 1,650 feet, and final gauge 47,000 cu. ft. a day.

In Pleasants County, Frank Ball deepened the test on the L. E. Fleming farm in McKim district to 1,978 feet. There was no gas in the Big Injun sand but plugged back to the Maxton sand Salt sands it has a gauge of 250,000 cu. ft. a day.

In Wayne County, the test of the Chartiers Oil Co. on the Stonewall Jackson farm in Butler district was drilled through the Corniferous lime (locally Niagara lime) and Clinton to 4,167 feet, and it had a light showing of gas and was abandoned.

Oriskany Gas Field

Two wells were completed in the Oriskany gas field in Kanawha County. In Poca district the United Fuel Gas Co. completed No. 4818 on the W. H. Fisher farm at a total depth of 4,873 feet with a final gauge of 11,474,000 cu. ft. a day. This company completed No. 4815 on the Mamie A. Ray farm at a total depth of 5,041 feet with a final gauge of 7,805,000 cu. ft. a day.

In the Elk-Poca fields, three new locations were made: In Poca district, United Carbon Co. on the D. D. Slater and others farm, elevation 788 feet; Hayes Oil & Gas Co. on the J. A. Wilkinson farm, elevation 652 feet; Elk district, Poca Fork Oil & Gas Co. on its fee, elevation 892 feet.

In the Jackson County extension of this field, United Carbon Co. made a location for No. 4 Elizabeth Ward Perkins in Washington district or the J. L. Burdette farm surface on the waters of Middle Fork about 4,550 feet north 42 degrees west of No. 3.

Outside Deep Tests

In Jackson County, Joe Rubin, N. P. Johnston and others are drilling at 3,285 feet in the test on the D. P. Curry farm in Ravenswood district and to the Berea; it is running higher than the test which had to be abandoned on account of fishing job on the D. O. Curry farm. In Ripley district, the Columbian Carbon Co. is drilling in slate and shells at 1,550 feet in the test on the G. W. Lathey farm about 6 miles southwest of the town of Ripley.

In the extension of the Kanawha County pool, Everett Starcher and others are drilling at 3,800 feet on the R. R. Boggess farm in Ripley district, Jackson County. In Grant district, Pleasants County the Columbian Carbon Co. is still fishing for part of the reamer at 4,825 feet on the Giles Hammat farm.

New Work

In Lewis County, Pittsburgh & West Virginia Gas Co. has a location for No. 7653 L. C. Waugh farm in Freemans Creek district, elevation 906 feet. Here the Carnegie Natural Gas Co. is deepening No. 2 Emma J. B. Linger.

In Gilmer County, Pittsburgh & West Virginia Gas Co. has started drilling a second test on the Alexander Lyons farm in Glenville district and has reached 300 feet. In DeKalb district, L. E. and W. H. Mossor are testing the Injun sand at 2,064 feet in No. 1 S. S. Riddle and McKnight and Whiting testing at 1,976 feet in No. 1 A. B. and J. D. Vannoy. Paul K. Weekley has spudded in and started drilling on the Stern and Turner lease.

In Pleasants County, R. E. Bills and others are down 850 feet on the Dennis Baker heirs in Jefferson district. In Ritchie County, Glen F. McBurney and

(Continued on Page 122)

EMSCO
IS A SUPERIOR
BRAKE
LINING
. . . AS *GOOD* AS
MONEY CAN *BUY*

EMSCO ASBESTOS CO.
DOWNEY, CALIF.
MANUFACTURERS OF EMSCO BRAKE LINING, CLUTCH FACINGS AND EMSCO PRECISION-MADE RIVETS

"PRE-SOLD"
Wall
MANILA
OIL FIELD
CORDAGE
stands the gaff!
Complete stocks are carried in both mid-continent and gulf coast fields.
Wall Rope Works, Inc.
2000 Nance Street,
Houston, Texas
Telephone: Cap. 0244

Standco
NO-SMOKE
USE STANDCO BRAKE LINING
—the drillers' best friend—drills more deep wells than all other linings combined. It makes an easy brake and feeds off evenly while drilling. See page 2100, Composite Catalog.
STANDARD BRAKE LINING CO.

ALWAYS
RENEW YOUR
SUBSCRIPTION
PROMPTLY

REGISTERED PROFESSIONAL ENGINEERS
GAS AIR WATER
REPRESSURING
INSTALLATION OPERATION
PETROLEUM ENGINEER
JO H CABLE
WICHITA FALLS TEXAS
GAS MEASUREMENT PERMEABILITY
COMPRESSOR PLANTS POROSITY
BOTTOM HOLE PRESSURE SATURATION
GAS OIL RATIOS RECOVERABLE OIL
CONTROL OF FLOW THRU FORMATION
REGISTERED PROFESSIONAL ENGINEERS

Among the Drilling

PECOS DRILLING CO., San Angelo, Tex., is moving in tools for the deepening of an important Tom Green County, Texas, wildcat test. Deepening will be on Buddha Oil Co. No. 1 Reed Brothers, 1 mile east of Carlsbad in the northwestern part of the county. The test has been shut down since November when fire destroyed the rig after about 25 feet of a 30-foot plug had been drilled out of casing cemented on top of a zone of saturation. Elmer Sutton, of Iraan, superintendent of the drilling firm, is to place four full crews on the job. The deepening contract is on a day basis and in 10 days the contractor expects the test to be some 200 feet below its present depth of 5,118 feet. The wildcat is 330 feet out of the southwest corner of Subdivision 39, Mason & Perry Survey.

RICHARDS & HOLLOWAY, Tyler, Tex., contractors, have been let the contract to drill a new wildcat test in Upshur County, eastern Texas. W. E. Brown, C. E. Gardner and J. Lanham Higginbothan, all of Dallas, have staked their No. 1 J. W. Crawford, 200-acre tract in the J. Thomas Survey. The test is in the southeast corner of the tract. It is on a block of about 4,000 acres and is contracted to 4,300 feet.

McQUEEN & CLEVENGER DRILLING CO., Fort Worth, Tex., has staked a half mile north outpost to the Sealey area of northern Ward County, West Texas. Location of its No. 1 G. Sealey is 330 feet from the south line and 990 feet from the east line of the north half of Section 47, Block F, G.M.M.B.&A. Survey.

TAUBERT & McKEE DRILLING CO., Fort Worth, Tex., is attempting to gain production in a closely-watched Jones County, West Central Texas, wildcat. The test is Ralph R. Carroll No. 1 G. Herndon, Division 3, League 359, Goliad County School Lands, about 15 miles north of the old Noodle Creek field. It has drilled saturation from 2,650-55 feet in the Noodle Creek lime. However, should the zone prove unproductive the test will be deepened to another prospective horizon at about 2,875 feet.

RHODES DRILLING CO., Dallas, Tex., is moving in materials for a new test for Ungren & Frazier in the rapidly expanding Griffin pool. Jones County, West Central Texas. It will be an offset to the recently completed well by Consolidated Oil Co in the McCaskey lands, in the northern part of the pool. Location is west of the Consolidated well and is in the southwest corner of Section 194, B.B.B.&C. Survey.

PLAINS PRODUCTION CO., Midland, Tex., is the contractor of a new Lea County, New Mexico, wildcat. Test is Paul B. English No. 1 Miller, in the center of the southeast of the northeast of Section 18-19s-32e. The location is approximately 5 miles southeast of production in the Coulthard area.

CROW DRILLING CO. of Shreveport, La., is drilling below surface casing on Neal & McDaniel No. 1 McDaniel, an important test drilling in the Joaquin field of Shelby County, Texas, near the Louisiana line. The well will test the lower Glen Rose formation, which is producing in four gas-distillate wells at present, and is believed productive of oil.

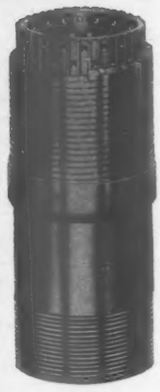
GRADY VAUGHN, Shreveport, La., drilling contractor, has set surface casing on Tide Water Oil Co. No. 1 Price, the second test to be drilled on the newly discovered Atlanta field of Columbia County, South Arkansas. Vaughn was the contractor on the company's No. 1 Beene, which was the discovery well of the field.

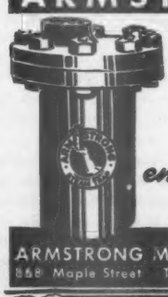
SULTANA DRILLING CO., Shreveport, La., completed a good "D" sand producer on the south edge of the Cotton Valley field last week for Oliphant Oil Corp. The well, No. 1-A Hodges, made an initial production of 897 bbls. daily through a quarter-inch choke. The "D" sand is a member of the lower Marine series, lying immediately above the Bodcaw gas-distillate sand in the field.

TRINITY DRILLERS, INC., is moving in a rig to Duval County, Texas, for John G. Mayo and others No. 1 Louise Hoffman, a wildcat near the San Diego townsite in the San Leandro Jose Rafael Garcia Salinas grant. In the La Sal Vieja area, Willacy County, H. C. Cockburn and others No. 1 Yturria has been spudded.

HOUSH & THOMPSON are moving in a rotary to the Iowa Colony prospect, Brazoria County, Texas, for No. 1 Lula Allen in the Kate R. Ehrmann Survey, about 1¼ miles northeast of Humble Oil & Refining Co. No. 1 C. J. Tuttle, a dry hole.

ALLEN & MORRIS completed Coronado Corp. No. 5 Michna in the

STANCLIFF
PATENTED
Ribbed
SCREEN

ACCURACY AND PERMANENCE OF GAUGE
are features of Stancliff Screen due to full depth, full width spacing lugs rolled into the wrapping wire.
HOWARD SMITH CO.
1201 SAWYER STREET
Houston, Texas.

ARMSTRONG

STEAM TRAPS
make drilling engines work better!
ARMSTRONG MACHINE WORKS
858 Maple Street Three Rivers, Michigan

EXTRA SUPERIOR MANILA
OILFIELD
ROPE
MARINE GRADE ROPE
Especially designed for the conditions of the oil fields. Specify
EXTRA SUPERIOR MANILA
Bull Rope Cat Line
Drilling Cable
Sold by leading distributors.
TUBBS CORDAGE CO.
200 Bush Street,
SAN FRANCISCO, CALIF.

Contractors

CASING HEADS
of Forged Steel

There is a Brewster Head for every casing or collar size and any pressure up to 10,000 pounds. Many are provided with a special feature that permits re-packing under pressure. All studs are heat-treated. Let us have your requirements and we will gladly quote prices and send you a catalog.

The BREWSTER Co., Inc.
Phone 2-3181 Shreveport, La.
New Iberia . Houma . Lake Charles
Rodessa

For Your DRILL PIPE'S SAKE

USE

KINZBACH-AJAX SLIPS!

● They reduce rotary slip costs since, by changing inserts, several pipe sizes can be handled with one set of segments. They assure even distribution of load over entire gripping surface as each insert is individually anchored to slip segment. These and many other advantages are described in descriptive literature, gladly sent upon request.

Available Through Leading Supply Stores

KINZBACH TOOL CO., INC.
HOUSTON, TEXAS

La Rosa field, Refugio County, Texas, and has started drilling the same company's Nos. 10 and 11 Rooke. In the Luby field, Nueces County, two rotaries are operating for the Seaboard Oil Co.

CROSBY DRILLING CO. is moving in a rig to the Francitas field, Jackson County, Texas, for No. 1 Kopnicky, 4,000 feet southeast of the company's No. 1 Broughton, completed a few months ago as the first oil well in the field.

H. J. PORTER received contract from Magnolia Petroleum Co. for No. 6 Drushell to be drilled in the Cordelle field, Jackson County, Texas.

ROWAN & HOPE received contract from Sun Oil Co. for No. 3 Olivarez and others in the Sun field, Starr County, Texas. Location is in Section 239.

NICKLOS DRILLING CO. is preparing to start a joint test with Continental Oil Co. in the Lockport field, Calcasieu Parish, Louisiana. The well is on the J. H. Moss lease in Section 8-10s-9w. Two rigs are operating for the same company in the Villa Platte field, Evangeline Parish, while at the Fausse Point salt dome, Iberia Parish, Texas Co. No. 5 State Lake-Fausse Point is drilling below 11,000 feet.

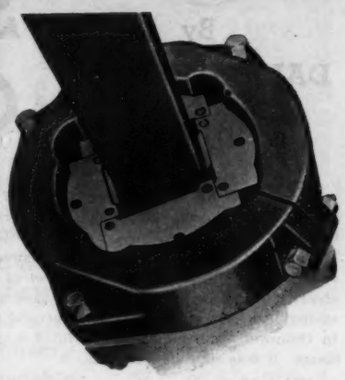
KERR-LYNN DRILLING CO. is drilling a well in the Oswalt area of Love County for Sinclair Prairie Oil Co. which is below 2,205 feet in sand. This is the No. 2 Stockton, in NE NE SW Section 26-6s-2w, three locations north of the discovery well. Contract depth is 7,200 feet.

NOBLE DRILLING CO., Tulsa, is drilling a wildcat for Pure Oil Co., known as No. 1 Noble, in NE SE Section 35-3s-1e, northwest of Ardmore in Carter County, Oklahoma. It has been drilling below 5,722 feet in Viola lime. This test will be drilled to 9,000 feet or to the Ordovician production zone. Base of the Viola is expected at around 5,900 feet.

McPHERSON DRILLING CO. No. 1 Cramm, SE SE NW of Section 15-19s-9w, Rice County, Kansas, was drilled to a total depth of 3,207 feet in Arbuckle; operators recovered fair porosity and saturation in core from 3,204 to 3,207 feet. It set 5-inch casing at 3,203 feet and was rigging up standard tools.

Rhodes & Johnson, drilling contractors, crew on tour at Iron Mountain Oil Co. No. 2 Taylor in the Griffin pool (Avoca townsite) of West Central Texas: T. W. Baker, J. D. Brown, V. J. Jones, Bob Johnson of Rhodes & Johnson, and "Stub" Deemer

SMOOTH GOING FOR YOUR KELLY



BAASH-ROSS Roller KELLY BUSHINGS

Described and illustrated on Page 177 of your Composite Catalog.

Send For New Bulletin

BAASH-ROSS
TOOL COMPANY
5512 Boyle Ave. • LOS ANGELES
5300 Clinton Rd. • HOUSTON
Export Office: 30 Rockefeller Plaza
New York City

H. C. SMITH ROCK BITS

INSURE INCREASED SPEED AND ECONOMY

H. C. SMITH ROCK BIT available in sizes 5⅞" up to and including 13"

•

Send for Folder or see Composite Catalog

H C Smith Oil Tool Co.

GENERAL OFFICES AND PLANT
P. O. Box 431, Compton, Calif.

Export Office:
30 Rockefeller Plaza
New York City

Oklahoma Operations

By
DAL DALRYMPLE

Searight Outpost, Seminole County, Finds Cromwell Pay

H. S. Moss No. 1 Leachman, C N half SE NE Section 34-10-6, wildcat in the Searight district, Seminole County, was estimated good for 600 bbls. of oil daily. It topped Wilcox sand at 4,625 feet, cored at 4,627-30 feet, total depth, and recovered 3 feet of sand with a showing of water. It was plugged back to 4,264 feet, casing was perforated at 3,830 feet and 3,812-19 feet in Cromwell sand and the hole filled with oil in two hours. It was shut in for tanks.

Wood Oil Co. No. 1 Peters, SW SE NW Section 28-8-4e, wildcat north of the St. Louis field in Pottawatomie County, pumped 40 bbls. of oil and 60 bbls. of water in 24 hours after having swabbed 84 bbls. of oil in 16 hours after reacidizing with 5,000 gallons. It topped Misener sand at 4,090 feet, Hunton lime 4,110 feet, Wilcox sand 4,542 feet, total depth 4,560 feet. Casing was perforated in Hunton and Misener formations at 4,085-4,153½ feet, and it swabbed 130 bbls. of oil in 24 hours, initially. After first acid treatment with 1,500 gallons, it swabbed 10 bbls. of oil in two hours.

Grimes and others No. 1 Dye, NW NW SE Section 2-5-5, wildcat southwest of Konawa and north of North Bebee in Seminole County, topped Hunton lime at 2,660 feet, Schlumberger survey showed possibilities of production in that formation and operators were preparing to test.

Garvin County again is proving attractive to wildcatters, two outposts being reported in the county. Midco Oil Corp. and others No. 1 Clay, SW SW NW Section 21-4n-3e, near Stratford, in the northeastern part of the county, was digging pits and cellar. The other outpost has been started by Pure Oil Co. at No. 1 Derdeyn, Section 19-3n-1e, southeast of Pauls Valley.

Sale of a portion of the eastern Muskogee County gathering system of Pure Transportation Co., a subsidiary of Pure Oil Co., to Joseph Coy and Charles Skalnik, of Tulsa, was announced the past week. About 30 miles of pipe lines serving some 90 leases is included in the transaction. The lines are in Townships 14n and 15n, Ranges 15e, 16e and 17e, and have been used for gathering oil for the Pure refinery at Muskogee. Coy & Skalnik propose using the lines in supplying oil to the King Refining Co.'s refinery at Muskogee. The new owners are due to take over about April 15.

Shell Petroleum Corp. has taken over gathering lines of Carter Oil Co. in southern Oklahoma areas, in the Ardmore district. The Shell company is expected to resume 100 per cent purchases of oil in the Healdton, Graham and Wildcat Jim fields, Carter County, where the Carter company has been taking 5 bbls. of oil per well daily. In return for the southern Oklahoma lines, Shell transferred some of its leases in the Greater Seminole district to the Carter company.

Wildcat Activity

English Drilling Co. No. 1 Rice, C NE NE Section 3-10-2w, wildcat in Cleveland County, southeast of the Oklahoma City field and north of the Moore pool, was reported abandoned at 1,400 feet, total depth. The 5⅛-inch casing was set at 1,290 feet.

T. P. Clonts No. 1 Jennings, NW NW NE Section 6-13-19, wildcat about 7 miles southeast of Muskogee in Muskogee County, was reported abandoned at 1,100 feet, total depth.

Starr Oil & Gas Co. No. 1 Georgia, SE SW NE Section 35-18-4e, about 3 miles west of Cushing in Payne County, opened a new gas area. It produced 1,880,000 cu. ft. of gas daily through perforations in Prue sand at 3,296-3,338 feet and from Skinner sand at 3,463-93 feet, with a slight showing of oil and water. It had been drilled to first Wilcox sand at 4,051 feet, second Wilcox sand at 4,083 feet, total depth 4,123 feet, and water was indicated on Schlumberger test. It was plugged back to 3,494 feet and upper formations tested.

Smith, Inc. No. 1 Black, SE SE SE Section 31-16-6, an old wildcat north of the Skellyville area in Lincoln County, was deepened from 3,903 feet to 3,980 feet, pumped 40 bbls. of oil with 10 per cent water in 24 hours and was recompleted. Mayes sand was topped at 3,860 feet.

Comail Oil Co. No. 1 Curran, SE SE SE Section 21-19-6, wildcat east of Yale in Payne County, had a hole full of water in Wilcox sand at 3,546-3,608 feet, total depth, and was abandoned.

Pure Oil Co. No. 1 Derdeyn, NE NW SE Section 19-3n-1e, about 1 mile southeast of Paul's Valley in Garvin County, was drilling below 1,000 feet in red beds. It was due to test Wilcox sand.

Pottawatomie County

Atlantic Refining Co. No. 1 Spaugy, SW SE NW Section 6-6-4e, Avoca pool, Pottawatomie County, was completed for 130 bbls. of oil in 24 hours at total depth of 4,443 feet. Production was from dolomite topped at 4,286 feet.

Denver Producing & Refining Co. No. 2 Richards, C N half NE NE Section 2-6-4, St. Louis field, was bottomed at 4,220 feet and produced 475 bbls. of oil initially in 24 hours.

Alma Oil Co. No. 2-A Edith Rhodd, SW NW SE Section 32-7-5, had initial daily production of 150 bbls. of oil at total depth of 4,192 feet in pay sand.

Hall & Briscoe No. 3 Smith, NE NE NE Section 32-7-5, found dolomite at 4,066 feet, total depth 4,090 feet, was treated with acid and completed for initial daily production of 318 bbls. of oil.

Magnolia Petroleum Co. No. 3 Fyke B, twin well, NE NW SE Section 20-7-5, was dry and abandoned at 3,525 feet, total depth.

Alma Oil Co. No. 2 Curley, SE SW NW Section 33-7-5, an old well, was deepened from 4,047 feet to 4,208 feet and recompleted for 750 bbls. of oil daily.

Same company's No. 1 Canfield, NW NE SW Section 33-7-5, was recompleted for 350 bbls. of oil daily after deepening from 4,252 feet to 4,257 feet.

J. F. Smith No. 2 Wood, NW NW SW Section 31-7-5, was treated with 4,000 gallons of acid at total depth of 4,386 feet and swabbed 377 bbls. of oil and 100 bbls. of water in 24 hours.

Eagle Oil Co. No. 1 Green, C W half W half SE Section 29-7-5, swabbed 675 bbls. of oil in 22 hours

Scouts in the Seminole district hold weekly check-meet at Shawnee. Bottom row: John V. Melton, Atlantic Refining Co.; Don J. Polk, Carter Oil Co.; J. M. Cobb, Gulf Oil Co.; Bruce Beaton, Stanolind Crude Oil Purchasing Co.; Charles Cargile, Simpson-Roodhouse; F. M. Johnson, Continental Oil Co.; Van Lowerre, Pure Oil Co.; T. D. Kramer, Ohio Oil Co., and O. H. Christophosen, I. T. I. O. Second row: Wayne Zorger, Amerada Petroleum Corp.; Dick Smith, Sinclair Prairie Oil Co.; C. J. Templeton, Shell Oil Co.; Charles E. Hewett, Mid-Continent Petroleum Corp., and czar of the check-meet; Hal V. Douglass, Magnolia Petroleum Co.; F. Fox, U. S. Geological Survey; J. Don Wiet, Phillips Petroleum Co.; A. W. Shattuck, Texas Co. Top row: J. E. Austin, Oklahoma Natural Gas Co.; E. W. Sisney, Cities Service Oil Co.; M. D. Hubley, Stanolind Oil & Gas Co.; R. E. Duty, W. C. McBride, Inc.; Bud Brown, Mudge Oil Co.; R. C. Harper, Sun Oil Co., and H. L. Curry, Deep Rock Oil Co. 102 drilling wells checked last meet

D+B INSERT LINER PUMPS

with the *New* ARMORED LINERS

Made from graphitic steel, D + B's new Armored Liners used in D + B Insert Liner Pumps have high resistance to wear and abrasion, high physical properties, and low coefficient of friction. Extensive field tests have proved they actually wear longer — and with D + B's policy of precision machining of each part, careful factory assembling and testing, you are assured the maximum in dependable service from every D + B pump.

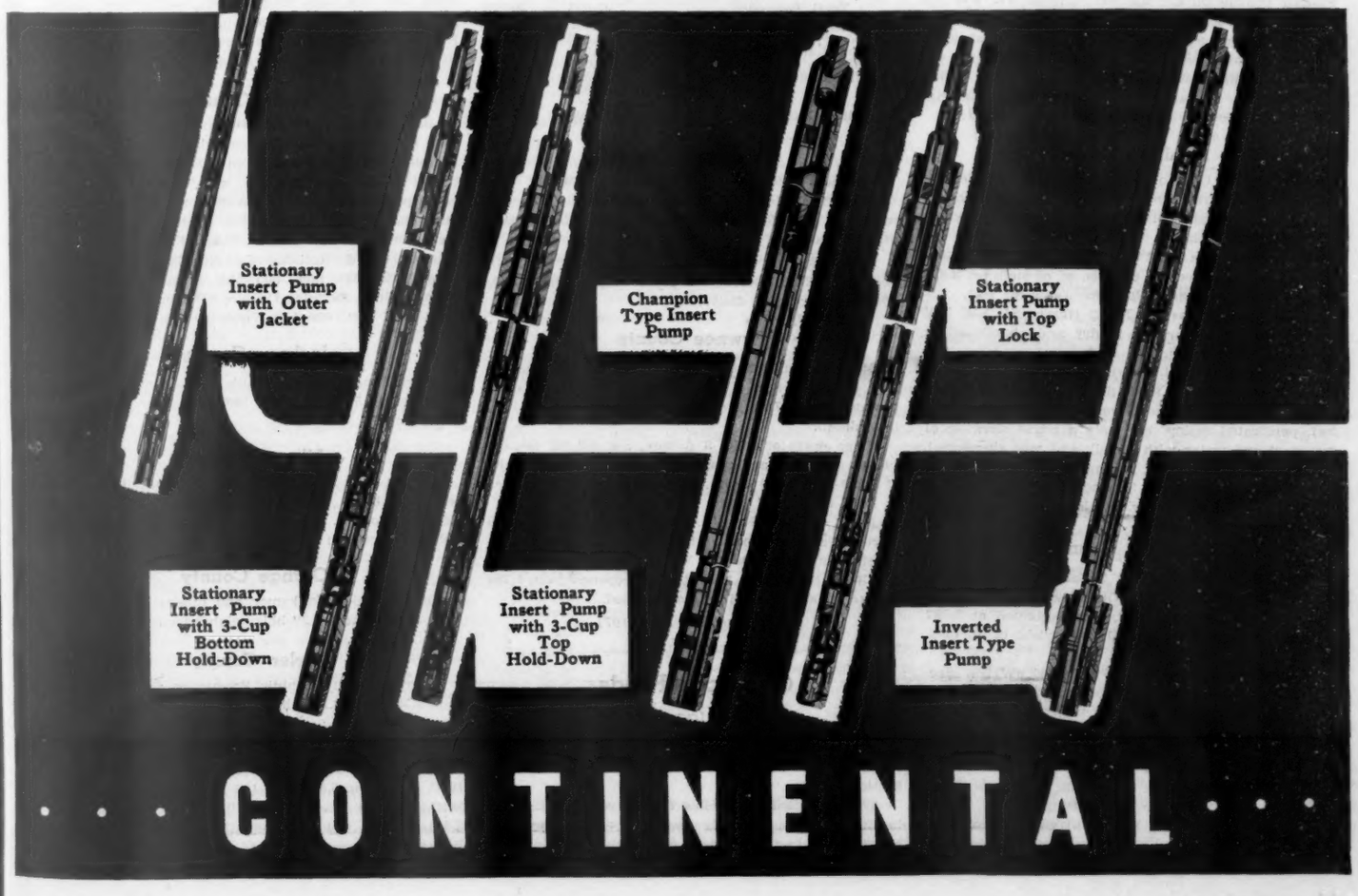
Numerous combinations are available with plungers, valves and hold-downs arranged to suit any well condition. Ask Continental to solve your pumping problems.

THE CONTINENTAL SUPPLY COMPANY

General Offices: DALLAS, TEXAS
Export Office: CONTINENTAL EMSCO CO., Inc.
30 Rockefeller Plaza New York City, N. Y.

Representatives:
LONDON MARICAIBO BUENOS AIRES TRINIDAD TAMPICO

"Serving the Oil and Gas Industries"


Stationary Insert Pump with Outer Jacket
Champion Type Insert Pump
Stationary Insert Pump with Top Lock
Stationary Insert Pump with 3-Cup Bottom Hold-Down
Stationary Insert Pump with 3-Cup Top Hold-Down
Inverted Insert Type Pump

· · · CONTINENTAL · · ·

and was shut in for tankage. Production was from Wilcox sand at 4,040-93 feet.

J. E. Trigg No. 2 Canfield, NE NW SW Section 33-7-5, an old well, was deepened from 4,216 feet to 4,237 feet and pumped 700 bbls. of oil, with 70 per cent water, in 24 hours. Gravity of the oil was 36 degrees.

Lincoln County

Cooper Drilling Co. completed another good producer in the Sac and Fox pool in Lincoln County at No. 6 Schoolland, NE NE NE Section 16-14-6. Prue sand was found at 3,004 feet, total depth 3,114 feet, it was shot and had initial daily yield of 300 bbls. of oil.

Wilcox Oil & Gas Co. No. 1 Schoolland, SE SW NE Section 16-14-6, topped Prue sand at 3,024 feet, was bottomed at 3,111 feet, was shot and pumped 184 bbls. of oil in 24 hours.

Same company's No. 23 Sac and Fox, SE SE SE Section 16-14-6, was completed at total depth of 3,095 feet and pumped 60 bbls. of oil daily from Prue sand.

Wilcox Oil & Gas Co. No. 24 Sac and Fox, SE NW NW Section 22-14-6, had Prue sand at 3,017 feet, total depth 3,091 feet, was shot and pumped 39 bbls. of oil in 24 hours.

Same company's No. 25 Sac and Fox, NW SE SE Section 16-14-6, found Prue sand at 3,058 feet, was bottomed at 3,062 feet, was shot with 300 quarts and flowed 56 bbls. of oil in 19 hours.

Operations in the Sac and Fox pool include: Wilcox Oil & Gas Co. No. 2 Schoolland, SE NW SE Section 16-14-6.

Pontotoc County

W. A. Delaney No. 2 Killcrease, SW SE NW Section 7-4-8, North Steedman area, Pontotoc County, was dry and abandoned at 2,047 feet, total depth.

Simpson-Fell Oil Co. No. 1 Bates B, NE NE SW Section 26-2n-7, Fitts district, found Hunton lime at 3,865 feet, was bottomed at 3,969 feet, was acidized and flowed 275 bbls. of oil in 12 hours.

Sinclair Prairie Oil Co. No. 7 McCarty, SW SE SE Section 15-2n-7, was shot with 15 quarts at total depth of 1,402 feet, swabbed 30 bbls. of oil in 24 hours and pumped 45 bbls. of oil in the next 24 hours.

New work in Pontotoc County: Ross Oil Co. No. 2 Bray, SW SE NW Section 25-5-4, Bebee area, location; Sinclair Prairie Oil Co. No. 5-B Starrett, NW NW NE Section 21-5-5, East Bebee area, location; J. R. Pierce No. 1-A Kroeger, SE NE SW Section 30-5-7, total depth 1,475 feet, waiting on cement; Magnolia Petroleum Co. No. 2 Chandler, NW NW NE Section 35-5-7, Allen area, location; Sinclair Prairie Oil Co. No. 8 McCarty, NE NW NE Section 22-2n-7, Fitts district, location.

Seminole County

Superior Oil Co. No. 1 King, NE NW NE Section 13-6-5, Grayson area, Seminole County, found dolomite at 3,769 feet, total depth 3,827 feet, and pumped 63 bbls. of oil in 24 hours.

Same company's No. 1 Weldon, NE NE NE Section 13-6-5, was completed for 60 bbls. of oil daily at 3,838 feet, total depth. Top of dolomite was 3,761 feet.

Francis Oil & Gas Co. No. 3 Harris, SE NW NW Section 4-6-6, Dora area, was dry and abandoned at 2,900 feet, total depth.

Carter Oil Co. No. 4 Chowning, NE SW SW Section 19-9-6, East Earlsboro field, Seminole County, an old well bottomed at 4,153 feet, was plugged back to 3,003 feet, perforated casing, had only a slight showing of gas, mud and water with no oil, and was abandoned.

Grisso Royalty Co. No. 2 Johnson, SW SW SW Section 27-6-5, had spudded, Simpson-Roodhouse Drilling Co. No. 1-A Cudjo, SE cor. Section 11-6-5, was building rig.

Okfuskee County

Shell Petroleum Corp. No. 2 Gahagen, SE NE NW Section 11-11-8, Dill area, Okfuskee County, found Cromwell sand at 3,353 feet, was bottomed at 3,387 feet, and completed for initial daily yield of 86 bbls. of oil.

Vincent and others No. 1 Fields, SE SW NW Section 2-11-11, Fields pool, was bottomed at 2,905 feet, plugged back to 2,800 feet and was abandoned with tools lost in the hole.

Noble County

Phillips Petroleum Co. and Shell Petroleum Corp. completed a big producer in the Billings pool, Noble County, at No. 6 Hackett, SE NE SE Section 21-23-2w. It was bottomed at 4,361 feet and made daily potential of 2,805 bbls. of oil from Wilcox sand.

Same operators' No. 2-A Harbison, Section 22-23-2w, was a location.

Creek County

Indo Oil Co. No. 1 Stanley, SW SW SE Section 33-18-19, Creek County, was shot and completed for initial daily yield of 60 bbls. of oil at 2,630 feet, total depth.

A. W. Swift No. 2 Hayden and others, NE SE NE Section 12-19-9, was reported abandoned at 1,165 feet, total depth.

Estimated Daily Production

Estimated daily production for Oklahoma for the week ending March 4, and for the preceding week, was as follows:

	Barrels	
	Mar. 4	Feb. 25
Allen	5,575	5,675
Billings	5,075	5,150
Burbank	7,650	7,675
South Burbank	9,200	9,250
Balance Osage	18,500	18,600
Blackwell district	3,825	3,950
Bristow-Slick	6,775	6,875
Chandler	1,725	1,825
Crescent	3,450	3,525
Cromwell	3,025	3,000
Cushing-Shamrock	10,250	10,350
Duncan district	4,025	4,125
Edmond	4,650	4,725
Fish	2,500	2,550
Fitts	30,525	30,575
Jesse	2,350	2,300
Graham-Fox	4,350	4,375
Gray	750	775
Healdton	8,850	8,925
Hewitt	3,625	3,675
Keokuk	3,750	3,775
Konawa	1,075	1,100
Lucien	7,950	8,050
Moore	3,625	3,550
Oklahoma City	110,350	114,050
Olympic	3,450	3,525
Ramsey	3,225	4,350
Sasakwa	1,275	1,300
Sholem-Alechem	2,325	2,300
Seminole district:		
Bowlegs	7,850	7,875
Carr City	3,000	3,025
Dora	4,425	4,525
Earlsboro	4,425	4,550
South Earlsboro	525	550
East Earlsboro	4,175	4,350
Little River	6,750	6,825
East Little River	700	725
Maud	1,050	1,075
Mission	1,400	1,425
Seminole	7,625	7,675
East Seminole	1,425	1,450
Searight	2,275	2,325
Total Seminole	45,625	46,375
St. Louis-Pearson	27,750	28,500
Tatums	1,575	1,625
Tonkawa-Garber-Thomas	3,975	4,125
Wewoka	2,050	2,075
Yale-Jennings	3,525	3,725
Other pools	83,000	83,500
Total Oklahoma	441,200	449,825

Muskogee County

Howard & Singer No. 1-A Mallory, SW SW NW Section 33-15-15, Link pool, Muskogee County, was bottomed at 1,349 feet, and pumped 40 bbls. of oil daily after a shot.

Heydrick and others No. 1 Anthis, SW NW NE Section 21-13-19, total depth 740 feet, produced 1,000,000 cu. ft. of gas daily.

Pawnee County

M. P. Thomas No. 2 Ackley, SE cor. Section 14-20-9, Keystone area, Pawnee County, had initial daily production of 37 bbls. of oil after a shot at 1,264 feet, total depth.

Same operator's No. 3 Ackley, SW SE SE Section 14-20-9, was shot and completed for 5 bbls. of oil daily at 1,265 feet, total depth. Cleveland sand was topped at 1,167 feet.

M. P. Thomas No. 4 Ackley, SE SW SE Section 14-20-9, was abandoned at 1,285 feet, total depth.

Sinclair Prairie Oil Co. No. 11 Burger B, C N half S half NE SE Section 17-21-8, was deepened from 1,784 feet to 1,800 feet, and was abandoned.

(Continued on Page 107)

Gulf Coast Fields

(Continued from Page 95)

tion 35-1n-3w, Rapides Parish, while Falcon-Seaboard Oil Co. is moving in material for No. 1 Hobgood in Section 8-1s-7e.

The Eola field, Avoyelles Parish, received its fifth location, and is gradually becoming one of the most active fields in the district. All development is being done by independents. The new location is O'Meara Brothers No. 1 W. F. Kelley on a one-acre tract offsetting the discovery well in Section 7-2s-3e. The two most advanced active wells are Sid Richardson No. 2 Haas Investment Co. which is drilling below 7,120 feet after topping the Cockfield sand showing oil at 6,506-11 feet. Salt water sand was cored at 6,511-21 feet. No. 3 Haas Investment Co. is bottomed at 6,756 feet and an electrical survey was being made to pick the top of the Cockfield formation.

In the Villa Platte field, Evangeline Parish, Continental Oil Co. No. 2 Vidrine, Section 34, west side of the field, has proven to be an edge well as salt water was cored in the Tate sand at 9,135 feet, the total depth, and the hole has been plugged back to 8,976 feet to complete in the Haas sand logged at 8,947-76 feet. On the east side, the production was extended about 1,000 feet as the same company's No. 1 Fontenot was completed at 9,095 feet for an initial production of 259 bbls. daily through a three-sixteenths inch choke.

On the Convent salt dome, St. James Parish, Continental Oil Co. is rebuilding derrick and moving in another rotary to take the place of the one destroyed by fire last week when the well blew out from what appears to be a new sand at 8,235 feet, the total depth. The well is located in Section 16-12s-5e, about a quarter mile from the discovery well which produces pipe line oil at 6,358-64 feet.

In the Lake Long field, La Fourche Parish, Fohs Oil Co. completed No. 7 State-Lake Long for an initial production of 22 bbls. of 49-gravity oil, flowing through a 20/64- and quarter-inch tubing chokes. Tubing pressure was 900 pounds. This opens a new sand for the field as completion was made through perforated casing at 9,816-19 feet. Other sands are productive at approximately 9,300 feet and below 10,000 feet.

TEXAS GULF COAST COMPLETIONS IN PROVEN FIELDS

Fort Bend County

Thompson field: Humble Oil & Refining Co. No. 4 Davis, 5,450 feet, 104 bbls., eighth-inch choke.

Galveston County

Dickinson field: Bennett Oil Corp. No. 1 E. W. Deats, 8,815 feet, 396 bbls. in 13 hours, quarter-inch choke. League City field: Salt Dome Oil Corp. and others No. 1 Ross-Stewart, perforated casing 8,965-75 feet, 120 bbls. fluid, 20 per cent salt water, eighth-inch choke.

Harris County

Bammel field: H. M. Harrell and others No. 1 Bahr, sand 6,201-15 feet, gas well. Fairbanks field: Amerada Petroleum Corp. and others No. 4 Bullimore, perforated casing 6,838-40 feet, 168 bbls., eighth-inch choke; No. 9 Mills, perforated casing 6,835-37 feet, 130 bbls., eighth-inch choke. Gem Oil Co. No. 8 Reid, sand 6,830-49 feet, 149 bbls., eighth-inch choke. Friendswood field: Humble Oil & Refining Co. No. 7-B Humble-West, sand 5,930-6,044 feet, 605 bbls., quarter-inch choke. Humble Oil & Refining Co. No. 9-B Humble-West, sand 5,511-6,047 feet, 600 bbls., quarter-inch choke.

Jackson County

West Ranch field: Magnolia Petroleum Co. No. 8-A West, sand 5,115-33 feet, 198 bbls., three-sixteenths inch choke.

Liberty County

Hardin field: Atlantic Refining Co. No. 1 Rives, 7,575 feet, 445 bbls., quarter-inch choke. Humble Oil & Refining Co. No. 1-B Partlow, sand 7,569-75 feet, 422 bbls., quarter-inch choke.

Orange County

Orange field: Hankamer and others No. 1 Conley, sand 5,963-70 feet, 129 bbls., eighth-inch choke.

Tyler County

Spurger field: Republic Production Co. No. 17 fee, sand 7,727-45 feet, 320 bbls., quarter-inch choke.

Wharton County

Magnet field: Humble Oil & Refining Co. No. 10 H. C. Cockburn, 5,538 feet, 132 bbls., eighth-inch choke. Withers field: Texas Co. No. 27-B Pierce Estate, sand 5,531-46 feet, 120 bbls., eighth-inch choke; No. 56-C Pierce Estate, sand 5,528-44 feet, 117 bbls., eighth-inch choke.

Michigan Field Report

By O. C. PRESSPRICH

Western Michigan Again in Prominence With New Pools

SAGINAW, Mich., Mar. 6. — Increased activity in western Michigan dominated more than ever before Michigan oil developments during the past week. While the helter-skelter race for oil in the booming Bloomingdale field approached its zenith, attention was shifting to a new concentration point—Walker Township, Kent County, 6 miles west of Grand Rapids, Michigan's second city.

Oil men see another prime field in Walker Township, where the first well, moderately successful, attracted little attention when brought in last fall. Operators leased, bought, and traded quietly until today there is hardly an acre loose for miles around the scene of current development. There have been no exceptional finds, but predictions are being made that Walker Township will become one of the greatest oil and gas developments in the state.

A spokesman for a company which, through partnership leasing and purchasing arrangement, has acquired the rights on at least 3,000 acres in the most favorable locations, contends "the field has every promise of being even bigger than the Buckeye discovery."

Entire families are moving into the Grand Rapids scene from Mount Pleasant, Gladwin and other Michigan oil towns. Oil men from half a dozen western and eastern oil states are congregating there and Michigan companies are watching developments with great interest. One company maintaining headquarters in Saginaw is transferring its two scouts to permanent locations in the new western Michigan center.

With acreage closely held, there are indications that development will be far more orderly than that of the Bloomingdale field in nearby Van Buren County. To date in Walker Township, there have been four completions, four other wells are drilling and permits have been issued for several others. Considerable wildcatting also is in progress to the northward.

Exceptional gas pressure has marked completions thus far. Oil is being found in the Traverse and Dundee levels and gas pressure even has been noted in the Marshall, which in Walker Township is only 300 feet below the surface.

Development started last fall with the completion of the McCollum & Herr No. 1 Storey. Acidized soon afterward, it has been producing at an almost constant rate of 20 bbls. daily. A month ago Smith Petroleum Co. and Wagner Trust drilled in No. 1 Whalen, east offset to the discovery, getting 125 bbls. natural flow per day from the well. After acid treatment production rose to a steady 250 bbls. daily. Two weeks ago Smith Petroleum Co. brought in No. 2 Whalen with 200 bbls. daily, natural flow. Gas pressure has been excessive, delaying acid treatment. Just prior to that find Atha Drilling Co. finished the other offset to No. 1 Storey and that well is steady at 250 bbls. a day. It has been acidized. Pay depth range appears to lie between 1,790 and 1,850 feet.

24 Completions in State

Completions in Michigan last week stepped up to 24, five more than for the previous week, with play concentrated in Bloomingdale Township, which had 12 wells completed, all but one a producer, for a combined potential daily production of 4,200 bbls., more than two-thirds of the week's total potential. Seven of the other 12 completions, in eight counties, were failures.

Concern is felt regarding the weakening price structure as a result of the unbridled Bloomingdale development. Many of the wells there are on town lots. Efforts of the more conservative to bring about some measure of agreement to prorate production, restrict future drilling, and save the field, apparently have been wholly unsuccessful. And, with a ready market essential, as a result, prices have dropped rather sharply. Crude prices in the established northern Michigan areas now are down to 88 and 90 cents a barrel. Because of the big supply in Bloomingdale the price there is even lower by 10 cents and more. There even are rumors of sales at such low rates as 50 cents a barrel.

The effect is disheartening so far as Michigan crude in general is concerned, and to a lesser extent on the national picture. Accordingly, more than the expected interest is being shown in the regulatory bill now before the Michigan legislature, to provide for greater state control over the industry, to require a form of proration for all wells and to restrict concentration of drilling.

24 Permits to Drill

Six of the 24 permits issued during the past week by the state conservation department were for new wells in Van Buren County, three of them for Bloomingdale. Eight of the permits are for wells in Allegan County, where Bell & Marks plan exploratory tests in three sections of Hopkins Township, near the recent new strike in Salem. Another test was permitted for Walker Township in Kent County and wildcats are planned in Grand Haven and Tallmadge townships, Ottawa County, and in Newaygo County's Home Township. Three permits were issued for new wells in Clare County, two were for drilling in Isabella County.

Failure of exploratory tests accounted for most of the eight failures in the 24 Michigan completions last week. Wells were abandoned in Monitor Township of Bay County; in Pipestone Township, Berrien County; in Georgetown Township, Ottawa County, Isabella's Wise Township, Kalamazoo's Brady Township. The two other failures were in Columbia Township, Van Buren County.

The Fisher & McCall No. 1 Melvin in Bloomingdale, Section 8, was one of the biggest wells of the week, production being estimated at 1,000 bbls. daily after the well was acidized, while Muskegon Oil Corp. No. 1 Sutter, in Section 11 of Salem Township, Van Buren County, had a natural flow of 800 bbls. a day and Thompson & Fox got 600 bbls. naturally from their No. 1 Carmichael, Section 8, Bloomingdale.

Another deep test in Bay County is being watched. Gulf Refining Co. plans to drill No. 1 Bateson, Section 2, Monitor Township, to depths which may reach 5,000 to 7,000 feet, depending upon what shows in such potential horizons as the Sylvania and Trenton. The drilling was temporarily abandoned several weeks ago at 3,755 feet to test out a Monroe lime horizon by bridging back to 3,530 feet and acidizing and later using a nitro shot. Operators estimated the Monroe pay zone would produce commercially at from 100 bbls. a day up at from 3,530 to 3,550 feet, where the well probably will be plugged back if the deep test does not uncover a more profitable formation.

Following is a summary of the past week's completions.

Allegan County

Overisel Township (4n-14w)—One completion featured the week's activity in the important Overisel field as the Stewart Oil Co. No. 1 Lampen, NE NE NW Section 27, was brought in with a natural production of 250 bbls. daily. Total depth was 1,466 feet.

Salem Township (4n-13w)—One of the week's biggest producers was the Muskegon Oil Corp. No. 1 Sutter, NW NW NW Section 11, which was drilled to a total depth of 1,599 feet and flowed naturally 800 bbls. daily.

Kalamazoo County

Brady Township (4s-10w)—Southern Michigan's extensive oil development reached unsuccessfully into Kalamazoo County. Premier Oil Co. reported abandonment of a dry hole drilled down 1,272 feet. The test was the No. 1 Harper, NE SW SW Section 26.

Berrien County

Pipestone Township (5s-17w)—Bloomingdale Development Co. abandoned temporarily at only 130 feet its No. 1 William Tabor, NW NW SE Section 33.

Bay County

Monitor Township (14n-4e)—An exploratory test in Bay County failed as J. V. Wicklund Development Co., finding the well still dry at 2,175 feet, abandoned No. 1 Arnold, C half NE SE Section 10.

Clare County

Freeman Township (18n-6w)—McClanahan Oil Co. brought in its No. 1 VanHorn, SW NE NE Section 3, producing 400 bbls. daily after being drilled to a depth of 3,913 feet and then given an acid treatment.

Redding Township (19n-6w)—Pure Oil Co. added another completion to its successes in the Redding pool. Its No. 3 F. Switzer, S half SW SW Section 27, was acidized to 300 bbls. daily; total depth is 3,908 feet.

Isabella County

Wise Township (16n-3w)—Isabella, once Michigan's greatest oil area, witnessed a failure in the past week when the first completion there in many weeks was abandoned at 1,552 feet. The well was the Cryden Petroleum Co. No. 1 Caple, SE SE SE Section 18.

Kent County

Wyoming Township (6n-12w)—Wolverine Natural Gas Co. completed the No. 1 Orlick, NW NE NW Section 5, at 1,881 feet. The well was acidized and its production gauged thereafter at 450 bbls. daily.

Ottawa County

Georgetown Township (6n-13w)—Drilled to a 1,950-foot depth, the Gordon Oil Co.-Gerald Walker, trustee, No. 1 L. P. Ohler, NW NW NE Section 11, failed to show oil and was abandoned.

Van Buren County

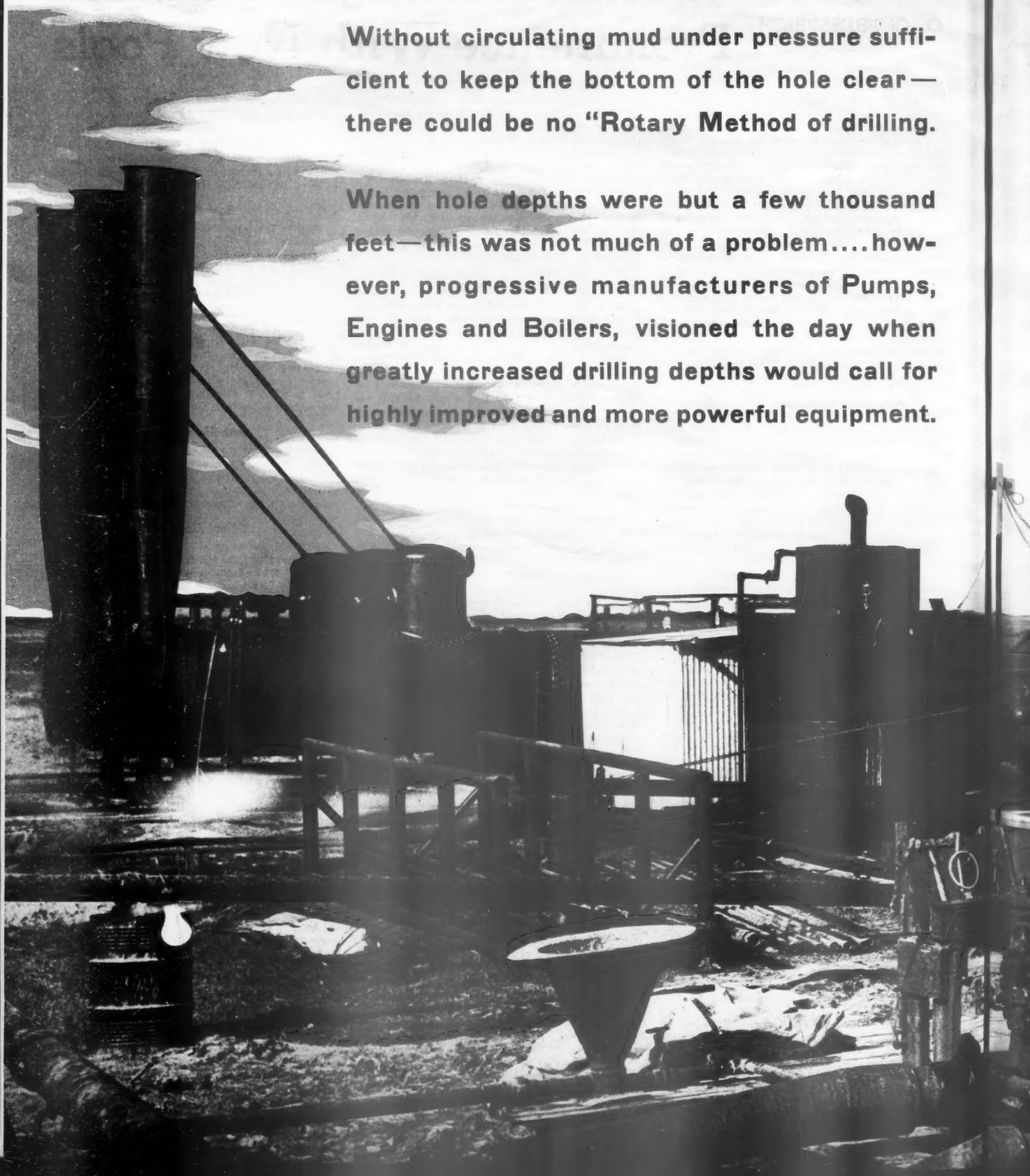
Bloomingdale Township (1s-14w) — Development reached a new high the past week in Bloomingdale as 12 wells were completed, all but one being producers. The one dry hole, abandoned after being drilled to 1,242 feet was the Anna Prather No. 1 Joy, SW NW SE Section 5. O. O. Borden No. 1 Stewart, SE SE NE Section 7, total depth 1,217 feet, produced 300 bbls. daily after getting acid treatment. One of the most successful completions was Fisher & McCall No. 1 Melvin after being acidized, the well, in SW SE SW Section 8, produced an estimated 1,000 bbls. daily. Thompson & Fox No. 1 Carmichael, SW NE SW Section 8, made a natural daily flow of 600 bbls. The Melvin well was completed at 1,206 feet, the Carmichael at 1,232 feet. Two small producers were completed in Section 14, the Clark & Johnson No. 3 Maiser, NW NW SE, yielding 100 bbls. daily after acidizing at 1,210 feet, and the Jetter Drilling Co. getting only 10 bbls. a day from the offset No. 1 Hense, SE NW NW. Three completions almost simultaneously in Section 16 had a combined production after acidizing of 650 bbls. daily. The E. G. Alexander No. 1 Lindsley, NW SW NW, produced at a 200-bbl. rate; the R. T. & E. Co. No. 1 Carnes, SW SW SW, was acidized to 100 bbls. daily; 350 bbls. daily was the production from T. H. Wallace No. 1 Wallace, SW SE NW. Completion depths were 1,208, 1,223 and 1,208 feet, respectively. Wiser Oil Co. got good production from its two completions in Sec-

(Continued on Page 113)

DEEP DRILLING DEMANDS

Without circulating mud under pressure sufficient to keep the bottom of the hole clear—there could be no "Rotary Method of drilling.

When hole depths were but a few thousand feet—this was not much of a problem....however, progressive manufacturers of Pumps, Engines and Boilers, visioned the day when greatly increased drilling depths would call for highly improved and more powerful equipment.



Powerful Pumps

To-day's pumps and power equipment have successfully met the "deep drilling" problem of ample pressure for satisfactory circulation.

Hughes Tool Company especially appreciates the important part these manufacturers have played and are playing in broadening the horizon of a great industry.

HUGHES TOOL COMPANY—HOUSTON

Kansas Developments

By
DAL DALRYMPLE

Arbuckle Lime Well at Hittle Rated at 6,730 Barrels a Day

A new oil pool was opened in Russell County, big gas production was found at an outpost in Barton County, a large producer was completed in the Edwards pool in Ellsworth County and several producing areas in Kansas were extended the past week. A 6,730-bbl. well was completed in the Hittle pool, Cowley County.

Sinclair Prairie Oil Co. No. 1 Oeser, SE SE SW Section 17-16-11w, about one-half mile northwest of the Prusa oil pool, Barton County, gauged 28,500,000 cu. ft. of gas daily on state test. Production was through perforations in casing at 3,076-3,117 feet in Lansing lime. Prior to official test, it blew in for an estimated 50,000,000 cu. ft. of gas while crews were swabbing the hole. The hole was bottomed in quartzite at 3,262-63 feet.

Meridian Oils, Inc., extended the Wherry pool in Rice County one-fourth mile westward at No. 1 Johnson, C E half W half SE Section 31-20-7w. It made 24-hour potential of 208 bbls. of oil at 3,321 feet, total depth. It is on an Amerada Petroleum Corp. farmout taken by C. L. Carlock and E. J. Shaffer, owners of Meridian Oils, Inc.

McPherson Drilling Co. and others No. 1 Cramm, SE SE NW Section 15-19-9w, gave promise of linking the Cramm and North Cramm pools in Rice County. A core in Arbuckle lime at 3,204-07 feet, total depth, showed some saturation and fair porosity. Operators set 5-inch casing at 3,203 feet preparatory to testing.

Hartman & Blair No. 3 Waite, SE SE NE Section 2-31-4e, in the Hittle pool, Cowley County, was completed as one of the larger Arbuckle lime producers in the state in recent years. It made potential of 6,730 bbls. of oil on initial test at 3,318 feet, total depth, in lime.

Among the Wildcats

Darby Petroleum Co. No. 1-C Peavey, NW NW NE Section 24-11-18w, the discovery well in the Peavey pool, Ellis County, but the second well to be completed in the area, had Arbuckle lime at 3,425-56 feet, total depth, pumped 456 bbls. of oil in eight hours and made 24-hour potential of 1,367 bbls. It uncovered production last fall in the area 1¼ miles southwest of the South Burnett pool but was not listed as a completion until the past week. In the meantime the northwest offset, same operator's No. 1-A Peavey, SE SE SW Section 13-11-8w, was completed for daily potential of 2,275 bbls. of oil from Arbuckle lime at 3,396-3,411 feet.

The discovery well in the North Coralena pool, Russell County, was completed at R. H. Shields No. 1-A Gross, CSL SW SE Section 5-15-13w. It found pay in Dodge lime at 2,878-86 feet, was bottomed at 2,976 feet, plugged back to 2,895 feet, perforated casing and acidized. It pumped 201 bbls. of oil in eight hours and made potential of 603 bbls. Location is about three-fourths mile north of the Coralena pool.

Continental Oil Co. No. 1 Drumm, SE SE NE Section 16-9-21w, outpost three-fourths mile west of the Morel pool in southeastern Graham County and classed as an extensioner of that area, was completed in Arbuckle lime at 3,681-3,702 feet, total depth. It pumped 348 bbls. of oil in eight hours and made daily potential of 1,043 bbls.

Vickers Petroleum Co. No. 1 Sutphin, SW SE SW Section 30-22-4e, wildcat southwest of the Peabody pool in Marion County, topped Lansing lime at 1,860 feet, had chat at 2,487 feet and was dry and abandoned at 2,643 feet, total depth.

Hancock and others No. 1 Roush, SE SE NW Section 8-28-13, wildcat in the southeast corner of Greenwood County, topped Mississippi lime at 1,490 feet and was dry and abandoned at 1,530 feet, total depth.

Simpson Oil Co. No. 1 Evans, C S half S half SW Section 21-28-7, wildcat in the Brandt-Sensabaugh area, Butler County, was a machine.

C. L. Carlock No. 1 Hartenbower, NW cor. Section 16-29-6, wildcat east of the Fox-Bush pool in Butler County, was a rig.

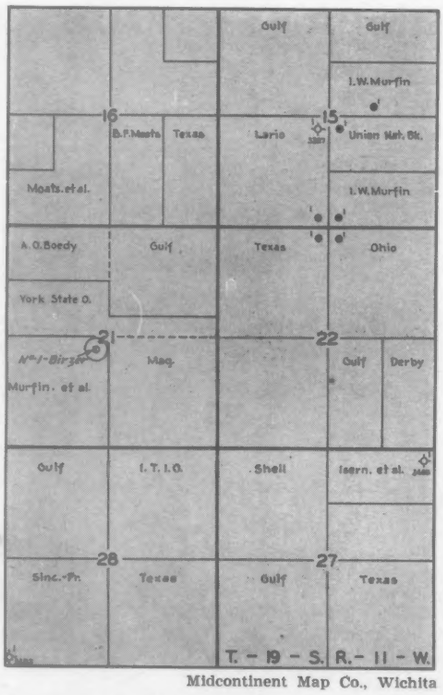
Ellis County

Phillips Petroleum Co. No. 2 Clinton, C N half S half NW Section 5-12-17w, Shutts field, Ellis County, penetrated Arbuckle lime from 3,615 feet to 3,638 feet, total depth, and pumped 107 bbls. of oil in eight hours. It was completed for 24-hour potential of 320 bbls. of oil, with 20 per cent water.

Cities Service Oil Co. No. 11-B Hall, NE NE NW Section 26-11-17w, was building rig.

Russell County

Sinclair Prairie Oil Co. No. 1 Sellens, SW cor. Section 15-15-13w, North Fairfield pool, Russell County,



Midcontinent Map Co., Wichita

A new producing area apparently has been opened 1¼ miles southwest of the Lanterman pool, Barton County, at Murfin and others No. 1 Birzer, Section 21-19-11w

found Lansing lime at 3,090-3,102 feet, topped Arbuckle lime at 3,331 feet, was bottomed at 3,334½ feet, was treated with 6,000 gallons of acid, pumped 374 bbls. of oil in eight hours and made 24-hour potential of 1,122 bbls. It is an east offset to the discovery well.

Western Kansas Oil & Refining Co. No. 1 Maag, SE SE SW Section 7-15-13w, Coralena pool, pumped 147 bbls. of oil in eight hours and was completed for initial potential of 441 bbls. Production was from Lansing lime at 3,075-79 feet, total depth 3,092 feet.

Hinkle Oil Co. No. 1 Krug, SE SE SW Section 8-14-14w, Vaughn area, Russell County, had oil showing in sandy conglomerate at 3,307 feet but was dry and abandoned at 3,327 feet, total depth.

New operations in Russell County: Texon Oil Co. No. 1 Bunker, SW SW NE Section 26-14-13w, was a cellar; Stearns and Vernon Oil & Gas Co. No. 1-B Olson, NE cor. Section 28-14-14w, was building rig; Wolf Creek Oil Co. No. 2 Witt, SE SE SW Section 10-14-15w, was drilling below 400 feet; Cities Service Oil Co. No. 2-B Krug, NW NW SW Section 13-15-14w, was a location.

Rice County

Continental Oil Co. completed another producer in the Geneseo field, Rice County, at No. 5 Meyer, SW SE SW Section 30-18-7w. After acid treatment it pumped 477 bbls. of oil in eight hours and made daily potential of 1,431 bbls. Production was from Arbuckle lime at 3,198-3,202 feet, total depth.

First reports of new work in Rice County: Continental Oil Co. No. 3 Fuller, SW SW NW Section 12-18-8w, building rig; Hinkle Oil Co. No. 1 Truesdale, NW cor. Section 34-19-9w, cellar; Shell Petroleum Corp. No. 1-A Wiggins, C E half NE Section 11-20-8w, building rig; W. E. Rennie No. 1 Williams, C S half SE SW Section 27-21-9w, set surface casing.

Estimated Daily Production

Estimated daily production for Kansas for the week ending March 4, and for the preceding week, was as follows:

	Barrels	
	Mar. 4	Feb. 25
Oxford City	1,000	975
Burrton	8,650	8,700
Ritz-Canton	6,250	4,075
Graber	3,375	3,550
Hollow-Nikkel	2,250	1,750
Lerado	775	600
Voshell	1,625	1,925
Wellington	2,000	2,025
Ellsworth County:		
Lorraine	1,775	1,725
Other pools	975	1,400
Rice-Barton counties:		
Bloomer	1,475	1,875
Chase	4,250	3,600
Geneseo	3,650	3,375
Raymond	500	775
Silica	8,550	8,200
South Silica	1,900	1,975
Keesling	1,075	1,075
Miscellaneous Rice	9,330	9,560
Miscellaneous Barton	7,305	8,040
Wherry	2,850	2,875
Russell County	21,000	22,250
Sedgwick County	3,275	3,525
Ellis:		
Bemis	3,300	4,850
Miscellaneous	1,710	2,940
Kingman County	425	620
Stafford County	4,520	5,550
Greenwood County	8,975	9,250
Butler County	18,625	19,125
Other fields	13,510	14,515
Total Kansas	144,900	150,700

Barton County

Derby Oil Co. No. 14 Frees, SE SW NE Section 3-17-11w, in the Kraft pool, Barton County, found Arbuckle lime at 3,367-95 feet and was bottomed at 3,414½ feet. It pumped 147 bbls. of oil in eight hours and made 24-hour potential of 442 bbls.

Polk & Fortsen No. 2 Kultgen, NW NW SW Section 16-16-12w, was a cellar. Amerada Petroleum Corp. No. 1 Mertin, C NW NW Section 14-19-15w, was building rotary rig.

Stafford County

Stanolind Oil & Gas Co. No. 8 Hartnett, C E half W half NW Section 13-24-11w, Zenith field, Stafford County, found Misener sand at 3,756-77 feet, was bottomed at 3,778 feet, flowed 118 bbls. of oil in four hours and made daily potential of 586 bbls. of oil.

Same company's No. 7-B Ferris, NW cor. Section

23-24-11w, pumped 51 bbls. of oil in eight hours and was completed for 153 bbls. of oil daily, with 8 bbls. of water. It found Misener sand at 3,802-10 feet, total depth.

Ellsworth County

A large producer was completed in the Edwards pool, Ellsworth County, at Continental Oil Co. No. 3-A Ploog, NW SW SW Section 27-17-8w. It found Arbuckle lime at 3,183-3,233 feet, total depth, was treated with acid, pumped 838 bbls. of oil in eight hours and made potential of 2,515 bbls. of oil in 24 hours.

Continental Oil Co. No. 1 Kunkle, C E half E half NW Section 33-17-8w, was building rotary rig. Cities Service Oil Co. No. 5-A Schrocker, NW NW SW Section 29-17-9w, was moving in material.

Butler County

Adair & Martin No. 7 Brandt, NE NE SE Section 15-28-7, Brandt pool, Butler County, had Mississippi lime at 2,683-2,708 feet, total depth, and was completed for an estimated 25 bbls. of oil daily.

Rex & Morris No. 2 Farmer, SW SW NW Section 8-28-7, penetrated Bartlesville sand from 2,636 feet to 2,661 feet, total depth, and pumped 30 bbls. of oil in 24 hours.

Alexander & Ritchie No. 1 Farmer, SW NW SW Section 2-28-7, was shut down at 250 feet.

New activity in Butler County: Adair & Martin No. 1 Dunne, SW cor. Section 23-26-7, drilling below 915 feet; Rex & Morris No. 2 Hutton, NE SW SW Section 14-28-7, moving in material; Saco Oil Co., Bennett & Ailbe No. 4-A Draper, NE SW SW Section 27-25-5, drilling below 750 feet.

Marion-McPherson Counties

Kaufman No. 1 Meyers, NE NW NE Section 27-17-4e, Lost Springs pool, Marion County, based Mississippi lime at 2,482 feet, topped Hunton lime at 2,636 feet and was dry and abandoned at 2,718 feet, total depth.

Jess Cling No. 1 Magnuson, NW cor. Section 25-19-3w, McPherson County, topped Kansas City lime at 2,360 feet, chat 3,014 feet, and was dry and abandoned at 3,060 feet, total depth.

Additional First Reports

Ace Oil Co. No. 1 Black, NW SE NE Section 21-25-1e, Sedgwick County, rig.

Reed & McPherson No. 1 Ellingson, SE SE NW Section 8-28-11, Greenwood County, drilling below 1,175 feet.

Skelly Oil Co. No. 1-E Miles, NE SW NW Section 29-27-10w, one-fourth mile south of production in the Cunningham pool, Kingman County, was moving in material.

Continental Oil Co. No. 1-A Putnam, C W half W half NW Section 23-9-21w, Morel area, Graham County, rigging up rotary.

Oklahoma Fields

(Continued from Page 102)

Southwestern Oklahoma

Fish & Fish No. 2 O'Neal, NE NW SW Section 5-1s-19w, Tipton field, Jackson County, had sand and granite wash at 2,544-62 feet, total depth 2,567 feet, and pumped 75 bbls. of oil daily.

Mudge Oil Co. No. 17 Crosley, NE SE SW Section 23-1s-5w, Velma pool, Stephens County, found sand at 622-40 feet, total depth, and pumped 18 bbls. of oil daily.

B. M. Densmore No. 1 Schoolland, SE NW NE Section 20-2n-10w, Lawton area, Comanche County, pumped 3 bbls. of oil daily from sand at 468-87 feet, total depth.

New Operations

E. I. Newblock No. 2 Jackrabbit, SE NW NW Section 36-15-12, Okmulgee County, was a machine.

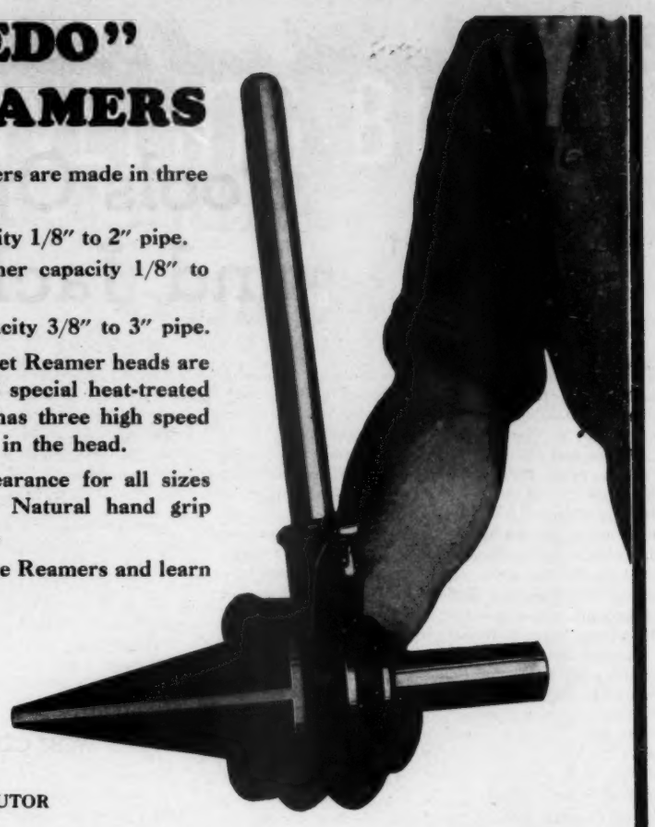
Mudge Oil Co. No. 18 Crosley, SE NE SW Section 23-1s-5w, Stephens County, drilling below 70 feet. Armour Oil Co. No. 3 High, SE NE SW Section 11-2s-8w, Stephens County, location.

Sinclair Prairie Oil Co. No. 18 Richards, NW SE NW Section 9-4s-3w, Carter County, machine.

Wichita Oils, Inc. No. 8 Pope, NE NE SW Section 28-2n-10w, Comanche County, rigging up.

F. M. Tinney No. 6 Osage, SE Section 15-24-8, Osage County, location. Norbla Oil Co. No. 1 Osage, NE Section 3-26-11, an old well, being deepened.

"TOLEDO" PIPE REAMERS



"TOLEDO" Pipe Reamers are made in three models:

Junior Reamer capacity 1/8" to 2" pipe.

Junior Ratchet Reamer capacity 1/8" to 2" pipe.

Ratchet Reamer capacity 3/8" to 3" pipe.

Junior and Junior Ratchet Reamer heads are made from one piece of special heat-treated steel. Ratchet Reamer has three high speed steel blades cast solidly in the head.

Ground with proper clearance for all sizes to insure fast cutting. Natural hand grip makes for easy handling.

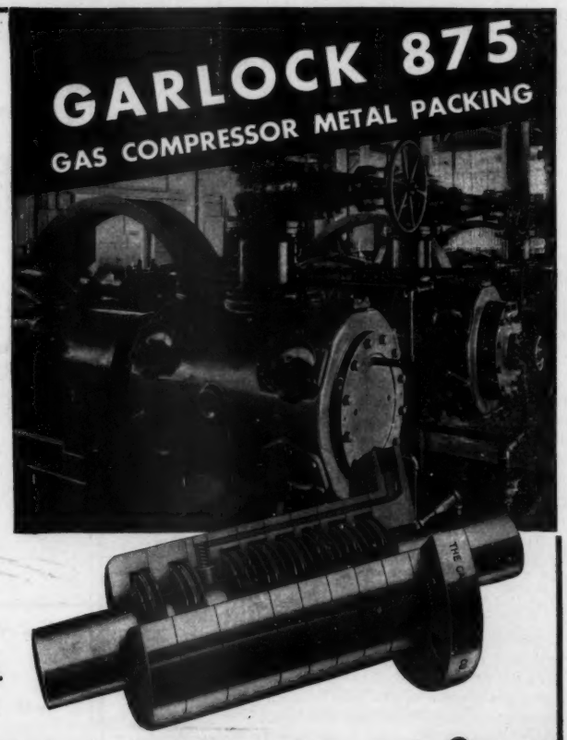
Specify "TOLEDO" Pipe Reamers and learn the difference.

"TOLEDO"

ORDER FROM
YOUR LOCAL DISTRIBUTOR

THE TOLEDO PIPE THREADING MACHINE CO.
TOLEDO, OHIO
NEW YORK OFFICE, 72 LAFAYETTE ST.

For Long, Dependable Service . . .



GARLOCK 875 Metal Packing is made of improved, non-abrasive iron. Gives long, dependable service on high or low stage gas compressors. In actual service it has conclusively demonstrated its superiority.

THE GARLOCK PACKING CO.
PALMYRA, NEW YORK

Tulsa, Okla. Houston, Tex. Los Angeles, Calif.

GARLOCK

Pools Opened in Palo Pinto and Jack; Fields Extended

By
D. H. STORMONT

FORT WORTH, Tex., Mar. 6.—The staking of four new wildcat locations in the Permian basin and indicated extensions to several proven areas led development in the West Texas district.

Cellar and pits were being dug, as the week closed, for the Texas Co.'s new wildcat on its Mallett Land & Cattle Co. holdings in the southwestern part of Hockley County. The test, No. 1-C Mallett, staked 440 feet out of the northeast corner of Labor 11, League 51, Scurry County School Lands Survey, is 4 miles west of the Texas Co. No. 1 Bob Slaughter, discovery well in the Slaughter pool of the southwestern part of the county. The test is 2½ miles southwest of the Texas Co. No. 1-B Mallett, wildcat oil well 2½ miles northwest of the discovery well. Also in Hockley County, Sid W. Richardson No. 1 Coe, mile northeast extension to the Slaughter pool, continues to test. Failing to effect a water shutoff in plugging back to 5,088 feet, the test is preparing to plug back again. At 5,088 feet it had recovered 92 bbls. of oil in 24 hours. It is located in Labor 53, League 40, Maverick County School Lands.

In Cochran County, adjoining Hockley County on the west, the indicated pool opener 1¾ miles west and north of the Dean pool, T. G. Shaw No. 1 Carrie Slaughter Dean continues to test. On a 10-hour swabbing test the well made 77 bbls. of oil. After standing for 10 hours it then swabbed at the rate of 10 bbls. hourly for six hours. The test has received three acid treatments at a total depth of 4,981 feet. It is located in League 94, Mills County School Lands.

The possibility of a new wildcat for southeastern Yoakum County was seen when Ted Weiner of Fort Worth and associates contemplated plans for their No. 1 W. E. Ivey, Section 874, Block D, Gibson Survey. It is understood that Weiner and associates have a block of approximately 600 acres lying about 6½ miles southeast of production in the Bennett pool. Definite location has not been staked but is expected by next week.

Also in Yoakum County and pushing the eastern side of the Bennett pool a quarter of a mile to the southeast, Honolulu Oil Corp. No. 10-695 Bennett, Section 695, flowed at the rate of 1,857 bbls. of oil daily on official gauge. It had been treated with 7,000 gallons of acid at a total depth of 5,250 feet.

South Basin Area

The Foster pool of Ector County received the majority of development in the southern basin during the past week. A mile north extension to the pool was indicated by the Atlantic Refining Co. and Ray Rhodes No. 1-D Johnson, Section 43, Block 42, T.&P. Survey, when it topped the pay at 4,070 feet and started heading oil. Tubing is being run for testing. The well is bottomed at 4,215 feet, in lime.

Also in the Foster pool, a new location was seen for the producing extremities of the west side. The test is the Stanolind Oil & Gas Co. No. 12-A Cowden, located in the southeastern corner of Section 23, Block 43, T.&P. Survey. Test is a quarter mile south offset to the same company's No. 16-B Cowden, which was completed recently for 496 bbls. of oil daily.

In the Harper pool of Ector County, a new quarter-mile west outpost to the pool was put on production during the week. It is the Blackstock Oil Co. No. 3 TXL, Section 33, Block 44, T.&P. Survey, which flowed 1,477 bbls. of oil in 24 hours after being shot with 600 quarts at a total depth of 4,147 feet.

Pecos County

Materials are being moved in for a test by Anderson-Prichard Oil Corp. and Monte Warner in the Masterson pool of Pecos County. The test will seek the deep Ordovician pay found in several tests in the county. Location is 1,980 feet from the northeast and northwest lines of Section 104, Block 10, H.&G.N. Survey, on the M. I. Masterson land, about 9 miles south of Magnolia Petroleum Co. No. 1-A Tex-Mex-McKee, a deep failure near Imperial. Spudding will be on or before March 10 and contract depth will be 6,500 feet.

Schleicher County

Lone Star Gasoline Co. will drill a third test on its holdings in Schleicher County's rapidly expanding gas pool, about 10 miles south of Eldorado. The test will be on a Shell Petroleum Corp. farmout in the southwestern corner of the northwest quarter of Section 31, Block L, G.H.&S.A. Survey. It will be a diagonal northeast offset to the Cooper Gas Co. No. 2 Page. Lone Star's new test will be the first in the area to be drilled with a combination rotary and cable tool rig and will be carried to 6,000 feet.

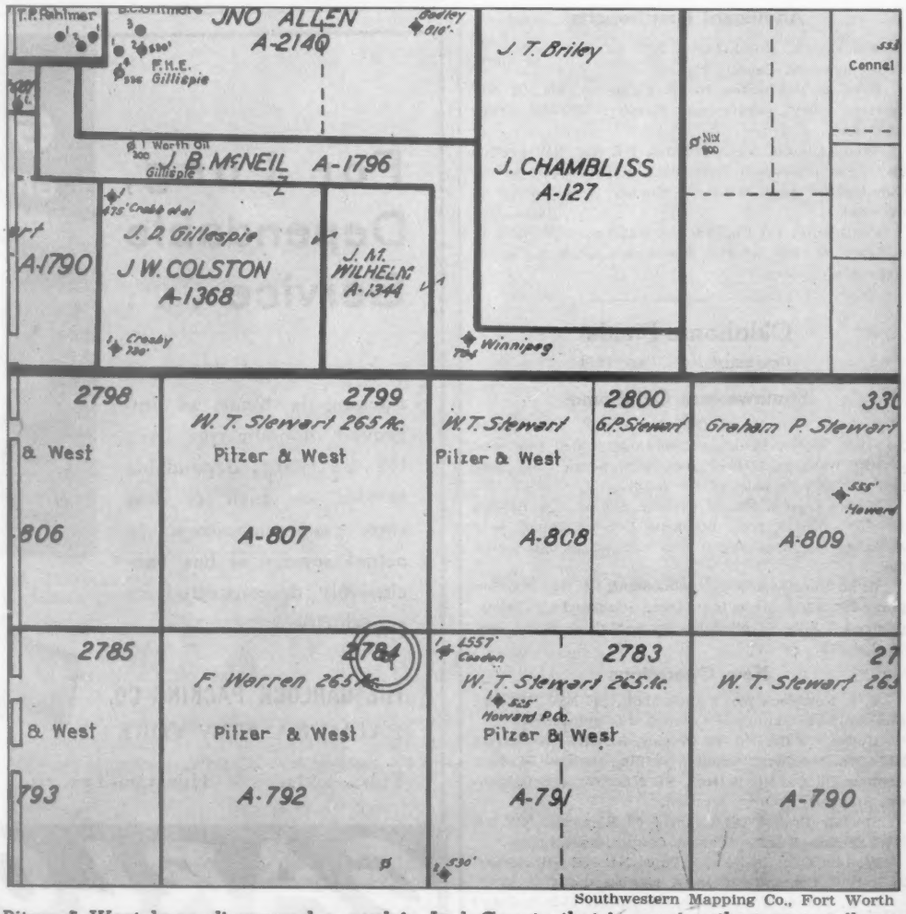
WEST CENTRAL TEXAS

The opening of two pools in West Central Texas, one each in Jack County and Palo Pinto County, featured a busy week in the district.

Greatest flurry of oil excitement to strike Jack County since the discovery of the Bryson pool three years ago was seen after the wildcat drilled by Paul Pitzer and Carey K. West in the Fred Warren farm blew in Monday to open a new pool for the county. While some observers predicted that the test would make from 1,500 to 2,000 bbls. daily the operators estimated it somewhere above 1,000 bbls. The well was acidized with 10,000 gallons under 1,000 pounds of pressure in 53 feet of rich saturation drilled from 4,365 feet to 4,418 feet. After acidization the well started blowing oil and acid water. Two hours later, after having been cleaned and having blown gas at the rate of 750,000 cu. ft. daily, the oil began showing, increasing until it filled the slush pit in 15 minutes, or at the rate of 3,000 bbls. daily. Located 3 miles north of Jermyn and 18 miles northwest of Jacksboro, the well is in the center of a 3,166-acre block in Section 2784, T.E.L. Survey, just west of a test drilled in 1919 by Cosden Oil & Gas Co. The pool opener is bottomed at 4,480 feet. With the discovery of the well, activity at once started in the county and as the week closed several drilling blocks around the test had been assembled and more were in the making.

A new shallow oil pool for Palo Pinto County has been opened by J. W. Lane and W. D. Dilbeck at their No. 1 R. S. Dalton, 1,120 feet from north and 1,916 feet from the east lines of Section 1789, T.E.L. Survey, Abstract 564, 8 miles north of Palo Pinto. The test is flowing about 75 bbls. of oil daily from saturation encountered from 1,220 feet to 1,238 feet. The well was shot with 20 quarts.

Continuing to be one of the most active counties

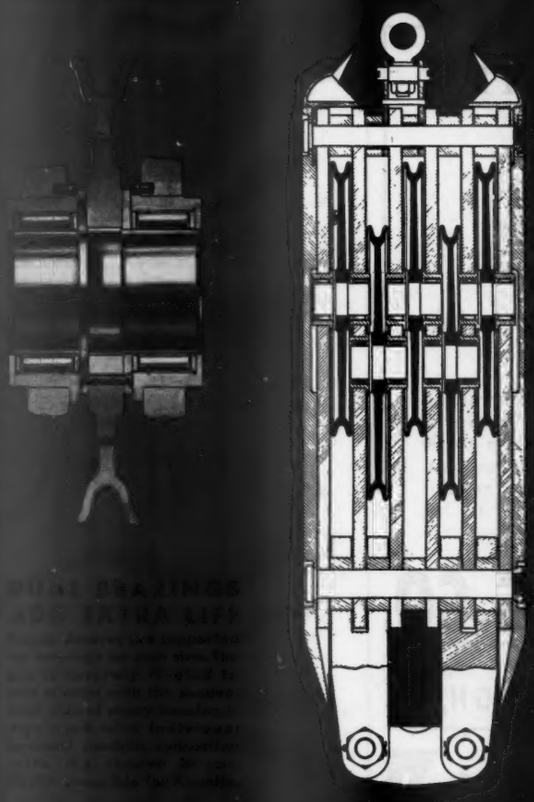


Southwestern Mapping Co., Fort Worth

Pitzer & West have discovered a pool in Jack County that is causing the greatest flurry of excitement since the discovery of the Bryson pool

REGAN 76" TRAVELING BLOCK

TYPE 4B



Regan

Forge & Engineering Co.

San Pedro California

Quality - Wrought on the Forge of Experience

Mid-Continent Office
1502 Maury St., Houston

New York — 17 Battery
G. R. Woods, Rep.

Oklahoma and Kansas
Representatives
Bovaird Supply Co.
Tulsa and Wichita

in the West Central Texas area, Jones County saw activity during the week in several widely separated areas. Extending the Griffin pool a half mile to the southwest, the D. Humphrey and Falls Refining Co. No. 1 Miss Naomi Smith, flowed 45 bbls. of oil into tanks in 30 minutes. Located 330 feet from the southwest corner of Section 199, B.B.B.&C. Survey, the well found pay in drilling to a total depth of 3,265 feet, the last foot and a half of pay having shown saturation. Casing had been cemented on top of the Palo Pinto lime, producing horizon for the pool, at 3,230 feet.

Prospects for production on the Appling lands 5 miles west of Stamford in the north central part of Jones County were seen when Gregg Oil Co. No. 1 E. D. Appling topped the Swastika sand at 2,632 feet showing oil and gas. Test is bottomed at that depth and the operator is cementing casing for a test. Located in the northeast corner of Section 32, B.B.B.&C. Survey, the well is the third one to be drilled on the Appling lands. The first test found pay in the Swastika sand but was drilled deeper and later plugged. The second test failed to pick up the sand section in drilling to 2,659 feet.

Possibility of a large spread to the Steffens pool was seen when S. B. Roberts drilled into saturation in the Flippen sand at 1,853 feet and penetrated it to 1,865 feet. The well is 1 mile south of the discovery, and is a semiwildcat in the Collier farm, Section 35, Block 15, T.&P. Survey.

Young County

New wildcat locations featured the week's development in Young County as several were staked and others spudded in various sections of the county. Henry Zweifel and others No. 1-C R. D. Sewall, in the J. W. Bray Survey, Abstract 1949, drilled plug at 3,924 feet after cementing casing on top of lime at 3,924 feet, and the well began flowing by heads. A 12-hour test produced 150 bbls. of oil and the crew is preparing to run tubing and complete.

Three miles southwest of Graham, Magnus-McLester No. 1 B. B. Teague, E. Coltrop Survey, Abstract 1390, is showing for about 12 bbls. of oil daily in lime at a total depth of 3,837 feet. The operators have indicated they may abandon the well. Rathke Oil Co. No. 1 Elkins, 450 feet from the north and 681 feet from the east lines of the Hodges Survey, Abstract 1900, 5 miles southwest of Graham, a 4,100-foot wildcat test, completed a fishing job at 3,585 feet and is trying to rerun 8-inch casing to the total depth.

North of the Knox pool, Trentman & Nunnelee No. 1 H. Brashears is in Section 1974 of the T.E.L. Survey. It is to be a 4,000-foot test and materials are being moved in for immediate drilling.

Homestead Oil & Gas Co. No. 2 J. F. Knight, in M. Dobbs Survey south of Graham, is a new 4,000-foot test and is drilling below 2,300 feet. Several other wildcat and semiwildcat tests were started throughout the county during the week.

WEST CENTRAL TEXAS COMPLETIONS

(24-hour tests)

Callahan County

Hughes No. 1 Cook-Jordan, 4,435-40 feet, 30 bbls. Iron Mountain Oil Co. No. 1 Clark, dry and abandoned at 850 feet. Pueblo Petroleum Co. No. 5 Jackson, 896-912 feet, 250,000 cu. ft. gas. Roeser & Pendleton No. 1 Yost, dry and abandoned at 4,829 feet.

Brown County

Evans No. 2 Kilgore, 1,114-26 feet, 10 bbls.

Coleman County

Arcadia Refining Co. No. 1 Roberts, dry and abandoned at 3,342 feet. O. Howe No. 1 De Busk, abandoned location.

Anzac Oil Corp. No. 3-J Morris, 1,978-2,000 feet, 15 bbls.

Comanche County

Henning & Jones No. 1 Jones, dry and abandoned at 2,025 feet.

Eastland County

Monark Oil & Gas No. 1 Downtain, dry and abandoned at 4,076 feet.

Haskell County

Sawyer Drilling Co. No. 1 Rowland, dry and abandoned at 5,120 feet.

Jones County

Brown Eagle and Kleiner No. 1 Waterson, dry and abandoned at 2,283 feet. Danciger Refining Co. No. 5 Roberts, 1,897-1,918 feet, 328 bbls. Iron Mountain Oil Co. and Humble Oil & Refining Co. No. 3 Taylor, 3,221-34 feet, 548 bbls. in seven hours. Petroleum Production No. 1 Gill, 1,868-84 feet, 5 bbls. Sandy Ridge Oil Co. No. 5 Steffens, 1,873-91 feet, 265 bbls. in 21 hours. Sprouls No. 1 Nichols, 1,779-83 feet, 15 bbls. Ungren & Frazier No. 2 Culwell, 3,228-33 feet, 615 bbls. in five hours.

Fain McGaha No. 1 Shaheen, 1,891-1,908 feet, 811 bbls. Petroleum Producers No. 1 L. Steffens, 2,085-98 feet, 200 bbls. W. H. Peckham No. 1 Avoca School, 3,271-81 feet, 105 bbls. Bert Fields No. 2 J. T. Taylor, 3,227-45 feet, 5,040 bbls.

Shackelford County

Alexander No. 1 Alexander, 715-24 feet, 500,000 cu. ft. gas. Dettenhaim No. 1 Lynch, dry and abandoned at 235 feet. Groover-Rose No. 1 Reed, dry and abandoned at 1,903 feet. Hart No. 3 Saunders, dry and abandoned at 631 feet. Iron Mountain Oil Co. No. 6 Beck, 3,186-3,207 feet, 1,050 bbls. Lawson & Wheeler No. 1 Saunders, dry and abandoned at 760 feet. Lee & Key No. 12 Dillard, 555-63 feet, 8 bbls. Myers No. 2 Mathews, 1,153-58 feet, 10 bbls. Nelson No. 1 Hill, dry and abandoned at 777 feet. Pantex Production No. 2 Shotwell, 1,606-08 feet, 31 bbls. in 18 hours. Sedwick No. 1 Sedwick, dry and abandoned at 722 feet.

Palo Pinto County

A. Atkisson No. 8 Costello, 1,382-96 feet, 15 bbls.

Taylor County

Forest Development Co. No. 1 Anderson, dry and abandoned at 3,550 feet.

WEST TEXAS FIELD COMPLETIONS

(24-hour tests)

Andrews County

Barnsdall Refining Co. No. 7 Ford, 4,328-4,458 feet, 767 bbls. Humble Oil & Refining Co. No. 19 R. M. Means, 4,400-4,535 feet, 2,731 bbls. Montecilo Oil No. 5 E. Cowden, 4,128-4,223 feet, 857 bbls. Shell Petroleum Corp. No. 4 J. S. Means, 4,230-4,530 feet, 2,033 bbls. Skelly Oil Co. No. 2 Ford, 4,230-4,450 feet, 1,211 bbls.

Crane County

Magnolia Petroleum Co. No. 2-6 University, 3,170-3,285 feet, 818 bbls. Tide Water and Atlantic No. 1-S.G. University, 3,015-3,125 feet, 257 bbls. Wasomes Oil Co. No. 1 University, 3,185-3,346 feet, 82 bbls.

Ector County

Arrow Drilling Co. No. 7 H. C. Foster, 4,221-4,321 feet, 631 bbls. Atlantic Refining Co. No. 3-C Johnson, 4,050-4,230 feet, 590 bbls. Blackstock Oil No. 3-B T.&P. Land, 4,000-4,161 feet, 1,476 bbls. Broderick & Calvert No. 2 O. B. Holt, 4,207-4,389 feet, 2,225 bbls. Devonian Oil Co. No. 4-A Scharbauer, 4,158-4,205 feet, 1,468 bbls. Gulf Oil Corp. No. 16-B Connell, 3,361-3,660 feet, 1,715 bbls. Gulf Oil Corp. No. 161 Goldsmith, 4,075-4,206 feet, 2,020 bbls. Gulf Oil Corp. No. 162 Goldsmith, 4,120-4,175 feet, 901 bbls. Gulf Oil Corp. No. 164 Goldsmith, 4,119-45 feet, 912 bbls. J. W. Her-

FULTON DUPLEX SENSITIVE GAS GOVERNOR
for
High Inlet Pressure
Low Outlet Pressure

Simple, Accurate—Durable with Manufactured Gas

With two diaphragms, the linkage of one so arranged as to multiply its power, the regulator shown is highly sensitive and accurate. Pressures up to 50 lbs. can be reduced to one ounce and kept constant. Unaffected by natural or manufactured gas, regulator gives long service without repairs. Write for Catalog of C-F Regulators.

The CHAPLIN-FULTON MFG. CO.
28-40 PENN AVE. CF PITTSBURGH, PA.

SEE with SAFETY

Use ECOLITE 50S

Shoots Bright Spot A Long Distance—

Ecolite 50S is an electric lantern specially designed for Oil Field use. It is safe in presence of inflammable gases and vapors. It's easily carried on the arm, giving freedom to hands. Recommended by Underwriters' Laboratories.

Available at Supply Stores

ECONOMY ELECTRIC LANTERN CO., 325 W. Huron St. Chicago, Ill.

Memo: Contact Atlas-Lansing for Drop Forgings that resist Corrosion and Heat.

ATLAS DROP FORGINGS
All shapes and sizes to 500 lbs.
ATLAS DROP FORGE COMPANY • LANSING, MICHIGAN

bert No. 3 Rosa Lee Cummins, 4,155-75 feet, 1,108 bbls. Landreth Production No. 2 Holt, 4,221-4,333 feet, 399 bbls. Landreth Production No. 6-M Scharbauer, 4,160-87 feet, 1,081 bbls. Landreth Production No. 3-P Scharbauer, 4,165-98 feet, 739 bbls. Phillips-Pure No. 55 C. Cowden, 4,111-56 feet, 1,779 bbls. Shasta Oil No. 7 Scharbauer, 4,169-4,203 feet, 160 bbls. Sunray Oil Co. No. 7-D R. C. Foster, 4,140-4,263 feet, 372 bbls. Texas Pacific Coal & Oil Co. No. 1 O. B. Holt, 4,250-4,476 feet, 779 bbls.

Gaines County

Continental Oil Co. No. 3-52 Wasson, 4,930-94 feet, 880 bbls.

Howard County

Ajax Drilling Co. No. 2 O'Daniel, 2,710-2,985 feet, 285 bbls. George E. Farley No. 2-A Settles-Shell, 1,307-19 feet, 661 bbls. Magnolia Petroleum Co. No. 12 A. E. O'Daniel, 2,610-2,790 feet, 356 bbls. Magnolia Petroleum No. 2 Peerless-Chalk, 2,700-2,885 feet, 1,448 bbls. Moore Bros. No. 7-A Snyder, dry and abandoned at 2,619 feet. Shell Petroleum Corp. No. 2-A D. H. Snyder, Jr., 2,660-2,858 feet, 613 bbls.

Pecos County

British American No. 5 Cordz, location temporarily abandoned. Childress Royalty Co. No. 6 Masterson, 1,460-85 feet, 553 bbls. J. L. Green No. 1 Iowa Realty, Trustee, dry and abandoned at 1,392 feet. Pecos State No. 3 State, 1,925-2,015 feet, 249 bbls. O. E. Schkade No. 1 Neville, dry and abandoned at 2,558 feet. W. H. Street No. 6 Texas-Shearer, 1,420-1,473 feet, 318 bbls.

Upton County

Parker Drilling Co. No. 1 Richard King-Texas Co., dry and abandoned at 2,122 feet. Shell Petroleum Corp. No. 8 Baker, 2,165-2,223 feet, 790 bbls.

Winkler County

Magnolia Petroleum Co. No. 216 Walton, 3,184-3,258 feet, 401 bbls.

Ward County

Magnolia Petroleum Co. No. 16-46 Sealy, 2,773-2,825 feet, 252 bbls. R. E. Mitchell No. 1 fee, 2,110-45 feet, 60 bbls. W. C. Proctor No. 3 Landon, 2,210-50 feet, 123 bbls. Western Well Servicing Co. No. 1 S. B. Lockland, 1,978-2,100 feet, 155 bbls.

Yoakum County

Denver Producing & Refining Co. No. 5-A Whittenberg, 3,184-3,258 feet, 401 bbls. Humble Oil & Refining Co. No. 2 Randall, 4,980-5,110 feet, 546 bbls. Shell Petroleum Corp. No. 8 Lowe, 4,900-5,165 feet, 1,060 bbls.

PANHANDLE FIELD COMPLETIONS

(24-hour tests)

Carson County

Sinclair Prairie Oil Co. No. 14 E. Cooper, 3,130-3,158 feet, 232 bbls.

Moore County

Shamrock Oil & Gas Co. No. 1 Smith, 2,912-3,118 feet, 74,518,000 cu. ft. gas.

New York-Penna. Gas Fields

COUDERSPORT, Pa., Mar. 6.—Completion of the Allegany Gas Co. well on the Dickerson farm gave the new Sharon Township, Potter County, Pennsylvania, Oriskany pool a known length of one-fourth of a mile when it came in during the past week with an initial open flow of 12,000,000 cu. ft. This well was 1,300 feet north and east of the discovery well. It reached the Oriskany sand at 4,823 feet, encountered the first gas show at 4,826 feet and was completed at 4,827 feet. The initial rock pressure was 1,775 pounds.

Another well in this area drilled into the Onondaga during the past week and shut down for casing. This was the Belmont Quadrangle Drilling Co. well on the N. Kemp farm which drilled through the Tully at 4,269-4,322 feet and topped the Onondaga at 4,866 feet. Casing is being set at 4,881 feet, 15 feet in the lime.

The second McKean County wildcat gave every indication of being a failure also when it too struck salt water in the Oriskany. The first, the New Penn-McKean test on the Glenn Taylor farm in Ceres Township, was completed at 4,701 feet after it had filled up with salt water. The second, the Penn Brad Oil Co. test on Warrant 5574 in Hamilton Township, extreme western McKean County, drilled into the sand at 4,115 feet and at 4,120 feet encountered salt water which filled up the hole to 150 feet in two hours. This test had topped the Onondaga at 4,076 feet and the Tully at 3,750 feet.

Four wells were completed in New York last week, two of them dry holes and the others gassers. G. L. Cabot, Inc., found salt water in the Oriskany on the Ray Scribner farm, Greenwood Township, Steuben County. This test reached the Onondaga at 4,137 feet, the Oriskany at 4,173 feet and found salt water at 4,180 feet, the depth at which it was abandoned. New York State Natural Gas Co. got a 1,400,000 cu. ft. well on the Meade farm, Woodhull Township, also in Steuben County, after increasing the flow 200,000 cu. ft. with a 20-quart shot. This well was drilled through the Oriskany from 4,055 to 4,076 feet and was completed at 4,077 feet. The gas was found 3 feet in the sand.

The other two completions were in Allegany County. Belmont Quadrangle Drilling Co. No. 3 on the F. Hilligass farm in Willing Township topped the Oriskany at 4,882 feet and at 4,884 feet encountered a flow of gas gauging 9,000,000 cu. ft. It had a rock pressure of 1,540 pounds. The G. L. Cabot, Inc., test on the C. W. Vossler farm in neighboring Alma Township got salt water at 5,302 feet and was abandoned at 5,303 feet. It topped the Onondaga lime at 5,237 feet and the Oriskany at 5,294 feet.

Two new locations were staked during the week, one in Sharon Township, Potter County, by the New Penn Development Co. on the E. J. Davis farm and a wildcat in Thurston Township, Steuben County, by Rehler and others on the Foster farm about 6 miles northeast of the Boyd farm pool opener in Cameron Township.

Rocky Mountain Fields

(Continued from Page 94)

Coolidge & Coolidge No. 3-A State, NW NE NW Sec. 36-36n-2w. Drlg. 875 ft.

G. & A. Oil Co. No. 12 Goeddertz, SE NE SW Sec. 23-35n-3w. T.D. 1,680 ft.; pmpd. 15 B.O.P.D. naturally; acd. 500 gals.; not tstd.

UTAH

Cane Creek Oil Co. No. 1 Govt., NW SW Sec. 31-26n-21e. Drlg. in salt at 2,845 ft.

Harry Hanbury

This is intended to clarify a matter of identical names. The man pictured here is Harry Hanbury, a producer of Shreveport, Louisiana, residing in California and has no connection, whatsoever, in business or blood relation with the Harry Hanbury of New York City and Tulsa, who is a buyer of oil royalties.

WELCOME TO ST. LOUIS

Welcome to friendly service . . . fine food and drink, served in the hospitable atmosphere of

HOTEL Mayfair

9th and ST. CHARLES

DOWNTOWN AT YOUR DOORSTEP

Over 50% of all rooms $3.50 or less single $5.00 or less double

NITROSE SAVES

1—Expensive preparatory work

2—The cost of a second coat

3—60% to 70% on labor required

PROTECTS METAL SURFACES AGAINST CORROSION, ACID FUMES, ALKALIES, EXTREME TEMPERATURES

WRITE

MADE ONLY BY THE NITROSE COMPANY, INC.

PEORIA, ILL., U. S. A.

Oilmen who know Lufkin never use a makeshift tape or rule. There is an accurate and serviceable Lufkin tape or rule for every kind of measuring job—surveying, building, strapping, tank gaging and derrick-measuring.

Ask your supply dealer to show you the Lufkin line. See the Lufkin page in the Petroleum Register and the Composite Catalog.

Send for complete Catalog No. 12, or pocket-size Booklet No. 2.

LUFKIN

TAPES—RULES—PRECISION TOOLS

SAGINAW, MICHIGAN • New York City

North Louisiana, Arkansas

By
GEORGE WEBER

Important Deep Tests Start in Big Three-State District

SHREVEPORT, La., Mar. 6.—The tri-state area of North Louisiana, Arkansas and East Texas saw a quiet week of drilling activity, with few completions or new developments of importance. The staking of several interesting deep tests, in wildcat outpost and field positions, promised important developments for the future. The Cotton Valley field gained a new "D" sand producer, as other tests approached and cored the lower Marine formation. A Caddo Parish wildcat is reported in oil sand, although nothing definite was forthcoming this week.

Cotton Valley

The Cotton Valley field's latest "D" sand producer, Oliphant Oil Corp. No. 1-A Hodges, C NW NE Section 3-20-10, came in making an initial production of 897 bbls. through a quarter-inch choke, with casing pressure of 1,650 pounds and tubing pressure of 1,475 pounds. Total depth is 3,690 feet. The lower Marine formation was topped at 8,038 feet and the "D" sand was topped at 8,494 feet. Bodcaw sand, which produces in the gas-distillate wells which predominate in the Cotton Valley deep production, was cored at 8,587-8,633 feet. Seven-inch casing was set at 8,684 feet and perforations were shot at 8,494-8,523 feet.

Two other active tests in the field are testing the Holloway sand of the Travis Peak formation at about 5,700 feet this week-end, and a number of deeper wells are coring or testing the lower Marine sands. Of the latter, an interesting test is the Stanolind Oil & Gas Co. and W. Delaney No. 1 Pardee-Coffee Unit, C NE SW Section 36-21-10. This deep test cored the top of the "D" sand at 8,499 feet and found salt water in the bottom 3 feet of the section. This is the first well to find a water table in that section. The test is located in a southwest diagonal offset position to the Stanolind No. 1 Pardee, which last year discovered the first oil in the Bodcaw sand, on the southeast edge of the field. The current test topped the Bodcaw at 8,594 feet and found a show of oil in the top part. Casing has been run, and interesting production tests are expected this week.

The Sibley deep test in southern Webster Parish got under way again after cleaning hole of twisted drill stem. The test, a flank operation in the Sibley gas-distillate area, will test the lower Marine. It was drilling below 7,875 feet at the week-end.

In northern Webster Parish, a second deep producer was brought in in the Shongaloo field. The Magnolia Petroleum Co. No. 4 Branton, near the NE cor. Section 6-22-9, was completed in the Sexton sand for an initial gauge of 78 bbls. daily of distillate and 1,460,000 cu. ft. of gas, through a three-quarters inch choke. Tubing pressure was 230 pounds and casing pressure 360 pounds. The gravity of the distillate is 62 degrees, and the hole is bottomed at 9,203 feet, with the top of the Sexton sand logged at 9,155 feet.

Morehouse Test

An interesting deep test was staked in Morehouse Parish by the Union Producing Co. No. 1-A Tensas-Delta, C NW Section 9-22-4, located on the north flank of the Munroe gas field, is reported to be a possible 9,000-foot test, to explore the Smackover lime, which is the object of the current drilling play in South Arkansas.

Caddo Parish

Three spots in Caddo Parish held attention in the past week. In the Shreveport field, most active drilling area in the parish, R. L. Bauman No. 1 Dorian, a south edge well, was brought in. On its initial gauge it showed 135 bbls. daily through open tubing, with tubing pressure of 300 pounds and casing pressure of 850 pounds, with perforations at 5,589-99 feet in the Pettit lime. Operators then acidized the lime section with 500 gallons, and the well's production improved considerably, reported at between 15 and 20 bbls. per hour through a half-inch choke, with tubing pressure of 750 pounds and casing pressure of 1,350 pounds.

The Vivian area gained a new small producer, as the F. W. Martin Drilling Co. brought in No. 1 Browning, pumping 75 bbls. of oil and considerable salt water, at 2,469 feet. A second test, Johnston, Flanigan and Williams No. 1 Henderson, in the immediate area, was abandoned at 2,545 feet after showing salt water. Three locations, made a few days ago at the height of interest in the new shallow area, were abandoned, as a result of recent failures in the Woodbine sand.

In the Blanchard area, the J. O. Whittington No. 1 Grayson, C SE SE Section 30-19-15, failed to find a show of oil in the top of the Pettit lime. The test topped the section at 5,635 feet and cored at 5,694-5,710 feet, recovering 5 feet of oolitic lime with no porosity and an odor of gas. The test was last reported shut down at about 6,000 feet, awaiting orders.

Production by Pools

Estimated daily gross production all companies week ending March 4:

NORTH LOUISIANA

	Bbls.
Bellevue	670
Caddo light	4,150
Caddo heavy	2,585
Converse	480
Cotton Valley heavy	95
Cotton Valley light	*11,385
Cross Lake	2,875
De Soto and Red River	1,165
Elm Grove	215
Haynesville	3,040
Holly	85
Homer	2,660
Lisbon	7,405
Pleasant Hill	105
Rodessa	27,940
Sarepta-Carterville	†415
Sligo	940
Sugar Creek	255
Urania	2,750
Zwolle	2,900
Total North Louisiana	72,115

SOUTH ARKANSAS

Buckner	1,570
Champagnolle	1,780
El Dorado	1,710
Lisbon	250
Magnolia	2,600
Miller County	350
Nevada	595
Rodessa	5,325
Schuler	18,380
Smackover light	1,905
Smackover heavy	15,000
Stephens	515
Troy	1,000
Urbana	1,150
Village	545
Total South Arkansas	52,675

Texas side of Rodessa field 31,050 bbls. daily.

*4,210 bbls. is distillate. †150 bbls. is distillate.

East Border Texas

Two new tests getting under way in the east border of Texas attracted considerable attention. In Harrison County, the Arkansas-Louisiana Gas Co. is rigged up on No. 1 Jim Davis, in the James Adams Survey, for a deep test in the Waskom field. The location is about 2 miles north of the same operator's No. 1 Abney, which tried to blow out last year at 4,834 feet, and was completed for an 18,000,000-cu. ft. gasser.

In the Joaquin field of northeastern Shelby County, Neal & McDaniel No. 1 C. W. McDaniel in the William Snider Survey, has set surface casing and will drill the lower Glen Rose formation which is producing four wells in the immediate area.

South Arkansas

A new deep wildcat to test the Smackover lime, as staked this week in Columbia County, was Phillips Petroleum Co. No. 1 Askew Unit, located in the C NE NW Section 4-17-21. It is located about 4 miles northwest of the Magnolia field, between that field and the Buckner field. Due to the 100 per cent record of success in Columbia County Smackover wildcats, resulting in discovery of four new fields, over the past several months, the progress of the Phillips test will be watched with considerable interest.

In the Snow Hill field, located on the north flank of the Smackover field in Ouachita County, Phillips Petroleum Co. reentered the No. 1 Reynolds, discovery of the Smackover lime pool, and first Smackover formation producer in South Arkansas. The well, which has gone to water, was deepened from 4,926 feet to 4,945 feet, encountering hard dense oolitic lime, with a salty taste. The well pumped an estimated 1,200 bbls. of salt water per day on a test, with no show of oil, and operators are arranging to plug it back to test the Tokio sand at approximately 2,750 feet.

The Atlanta field of Columbia County, latest discovery in the Smackover lime, has a second test. Tide Water Oil Co. No. 1 Price, located in the C NW SW Section 15-18-19, a north offset to the discovery well, is rigging up.

Southwest Texas Fields

(Continued from Page 86)

SOUTHWEST TEXAS COMPLETIONS IN PROVEN FIELDS

Aransas-San Patricio Counties

McCampbell field: R. B. Bryant No. 1 Morgan and McGinnis, perforated casing 7,125-38 feet, 210 bbls., three-sixteenths inch choke. Buckner Oil Co. No. 2 Barfoot, perforated casing 7,123-26½ feet, 200 bbls., three-sixteenths inch choke. Graham Oil Co. No. 4 Moore, perforated casing 7,119-24 feet, 200 bbls., three-sixteenths inch choke. Graham Oil Co. No. 1 Robinson, perforated casing 7,123-26 feet, 200 bbls., three-sixteenths inch choke.

Caldwell County

Salt Flat field: Louis Crouch No. 6 New, 2,733 feet, 38 bbls., pumping.

Calhoun-Victoria Counties

Heyser field: Gulf Oil Corp. No. 11-B Traylor, perforated casing 5,471-73 feet, gas well. Humble Oil & Refining Co. No. 25-A Welder, 5,605 feet, abandoned.

Duval County

Casa Blanca field: Magnolia Petroleum Co. No. 4 Duval County Ranch Co., 2,133 feet, abandoned. Magnolia Petroleum Co. No. 5 Duval County Ranch Co., 1,379 feet, abandoned. Eagle Hill field: Magnolia Petroleum Co. No. 18 Duval County Ranch Co., sand 1,458-63 feet, 23 bbls., jetting. Hoffman field: Argo Oil Corp. No. 4 Rodden-fee, sand 2,615-24 feet, 198 bbls., quarter-inch choke. Cox, Hamon and others No. 1 Hoffman-Duval, 3,602 feet, abandoned. Cuellar Brothers No. 2-A fee, sand 2,521-51 feet, 48 bbls., eight hours, jetting. Magnolia Petroleum Co. No. 25 Weil, 3,120 feet, abandoned. Reynosa Oil Co. No. 1 Ruiz, 2,710 feet, abandoned. Piedra de Lumbre field: Dutex

Production Co. No. 3 State, sand 2,073-86 feet, 86 bbls., eight hours, jetting. Dutex Production Co. No. 4 State, 1,440 feet, abandoned. Dutex Production Co. No. 1 State, sand 2,082-92 feet, 66 bbls., eight hours, pumping.

Guadalupe County

Darst Creek field: Chiquita Oil Co. No. 1 Malaer, 2,614½ feet, abandoned. Sun Oil Co. No. 3 Dowdy, sand 2,522-27 feet, 37 bbls. oil, 4 bbls. water, pumping. Dunlap field: Housel Oil Corp. No. 1 C. F. Appling, 2,359 feet, 17 bbls., pumping.

Jim Hogg-Brooks Counties

Kelsey field: Humble Oil & Refining Co. No. 4 McGill Brothers, sand 4,710-25 feet, 97 bbls., three-sixteenths inch choke.

Jim Wells County

South Alice field: Blanco Oil Co. and others No. 6 Rattan, perforated casing 4,998-5,008 feet, 120 bbls., three-sixteenths inch choke. W. G. Coates No. 1-C Stillwell, perforated casing 4,970-78 feet, 97 bbls., eighth-inch choke.

Nueces County

Flour Bluff field: Sinclair Prairie Oil Co. No. 4 State, perforated casing 6,640-48 feet, 221 bbls., eighth-inch choke. Riverside field: Republic Natural Gas Co. No. 1 Robertson, 5,525 feet, abandoned. Saxet field: Richardson Petroleum Co. No. 9 Perkins La Gasse, perforated casing 5,759-65 feet, 86 bbls., quarter-inch choke. West Saxet field: Phillips Petroleum Co. No. 7 McKenzie, perforated casing 5,855-60 feet, 101 bbls., eighth-inch choke.

McMullen County

Ezzell field: E. M. Jones No. 66 Ezzell, 1,555 feet, abandoned.

Refugio County

La Rosa field: Rutherford Oil Corp. and others No. 1-B Schirmer, perforated casing 6,108-12 feet, 96 bbls., eighth-inch choke. Tomoconnor field: Quintana Petroleum Co. No. 7 Williams, perforated casing 5,900-08 feet, 650 bbls., quarter-inch choke.

Starr County

Sun field: Sun Oil Co. No. 4 McKinney, perforated casing 4,893-98 feet, gas well.

Victoria County

McFaddin field: Barnsdall Oil Co. No. 18 McFaddin, sand 4,388-99 feet, 81 bbls., 7/64-inch choke.

San Patricio County

East White Point field: Humble Oil & Refining Co. No. 2 Speer, 5,675 feet, 132 bbls., 7/64-inch choke. Plymouth Oil Co. and others No. 3 Ficke, perforated casing 5,625-35 feet, 140 bbls., 7/64-inch choke. Shell Petroleum Corp. No. 2 Kirk, sand 5,664-73 feet, 128 bbls., eighth-inch choke.

Webb County

Killam field: O'Hern and others No. 1 D. G. Garcia, sand 1,989-95 feet, 30 bbls., 10 hours, pumping.

Zapata County

Comitas field: Nordan & Morris No. 3-C Haynes, sand 1,206-18 feet, 73 bbls., pumping. Escobas field: M. D. Arnold No. 1 Bustamante, 1,252 feet, abandoned.

Michigan Fields

(Continued from Page 103)

tion 17. The wells, acidized and producing 500 bbls. a day and 600 bbls., respectively, are the No. 7 Boyer, NE SW NW, and the No. 6 Boyer, NE SE NW. The No. 6 total depth is 1,231 feet, that of No. 7 is 1,235 feet. H. B. Cannon got the best well with the third completion in that section at 1,211 feet. His No. 1 Babcock, NW NW NW, produced naturally at 500 bbls. daily.

Columbia Township (1s-15w)—Two completions, two failures, the F. J. White No. 1 Florian, SW NW SW Section 5, was abandoned at 1,188 feet, as was the De-Vries & Boeve No. 1 Taylor, SW SW SW Section 19.

Famous the world over for Quality and Efficiency

ENSIGN

NATURAL GAS AND BUTANE-PROPANE

Carburetion Equipment

ENSIGN Natural Gas Carburetion Equipment has proved its superior quality and efficiency in the Oil and Gas industries for years.

The superiority of ENSIGN Equipment for the carburetion of Butane-Propane fuels (a comparatively recent development) is just as pronounced.

Vist our Exhibit at the Oil World Exposition, Houston, Texas, April 24-29 . . Booth No. 6

DRILLING

PUMPING

TRANSPORTATION

ENSIGN CARBURETOR CO., LTD.

LOS ANGELES · DALLAS · CHICAGO

did you know that there are 32 rigid inspection tests before Allegheny places their final "OK" on a shipment of

ALLEGHENY LUDLUM PIPE

to the oil fields?

ALLEGHENY LUDLUM STEEL CORPORATION

GENERAL OFFICES: PITTSBURGH, PA.

Houston, Texas Office and Warehouse

504 PETROLEUM BUILDING · PHONE CAPITAL 9096-7

Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ontario, Mar. 4. — In North Turner Valley, Royalite Oil Co. No. 35, LSD 7, Section 27-20-3w5, is below 6,444 feet, more than 271 feet in the Madison lime, and will likely be the next completion. Following completion of Home Oil Co. No. 2 Millarville, Royalite No. 35 is the only test active in North Turner Valley, and it is expected to throw additional light on the crude prospects in that area.

In West Central Turner Valley, Royalite No. 37, LSD 11, Section 5-19-2w5, finished 435 feet in the Madison at 7,628 feet depth, is completing official test, following acidization. It was only a fair producer before acidizing.

In South Turner Valley, D. & D. Oils No. 1, LSD 12, Section 9-18-2w5, is finishing government test after acidizing. Before acid treatment, natural flush production was estimated around 500 bbls. a day, and a good well is expected. The completion extends the proven field a quarter mile or more to the southwest. D. & D. No. 1 was drilled on Calgary & Edmonton Corp. acreage, and completion was assisted by British-American Oil Co., Madison Oils, Brown Oil Corp. and Calmont Oils. Location was southwest of National Petroleum Corp. No. 2 which got a good crude production in the upper lime but failed to reach the main porous horizon of the Madison owing to faulting. The faulted conditions did not appear in D. & D. No. 1.

West of the proven field, Okalta Oil Co. No. 6, LSD 3, Section 30-18-2w5, plugged back to 9,994 feet for a test of the upper lime, is shut down. Swabbing will be resumed when the weather moderates, and pumping equipment will likely be installed. The well flowed by heads for considerable periods after swabbing but failed to maintain continuous production.

West Central Area

In West Central Turner Valley, Davolite Oil Co. No. 1, LSD 10, Section 18-19-2w5, is rigging up rotary and will be spudded this month. Location is on acreage secured from Kermac Petroleums.

In Section 7-19-2w5, Valley Drilling Co. No. 1, LSD 11, is in the Belly River formation below 290 feet with 16-inch casing set at 250 feet.

In Section 6-19-2w5, East Creek Oil Co. No. 4, LSD 8, is in the top of the Blairmore formation below 6,214 feet and getting close to the Stockman sand. It got the grit beds marker at 6,105 feet and is now logging 215 feet shallower than Anglo-Canadian No. 1 producer farther south, indicating that the formations at depth thin out somewhat toward the north.

In Section 5-19-2w5, Royalite Oil Co. No. 40, LSD 4, is working on cellar.

West Side Drilling

On the Turner Valley west flank, in Section 29-18-2w5, Royalite Oil Co. No. 39, LSD 3, is below 1,734 feet. Royal Canadian Oil Co. No. 3, LSD 12, is spudding. In Section 17-18-2w5, Anglo-Canadian No. 6, LSD 3, is below 1,474 feet. Extension Royalties No. 2, LSD 11, is below 1,175 feet. In Section 16-18-2w5, Okalta Oil Co. No. 8, LSD 6, is deepening below 2,830 feet after changing to rotary outfit.

In Section 9-18-2w5, George Harris and associates No. 1, LSD 13, is below 5,375 feet after getting the cardium sandstone at 4,550 feet, and is logging about 60 feet lower than Royal Canadian No. 2 producer immediately to the north. In Section 5-18-2w5, Theodore Grewer and associates No. 1, LSD 14, is deepening below 300 feet after being shut down for several months at 150 feet. This is the farthest south active test in the field.

Home Oil Operations

At a meeting held at Vancouver recently, directors of Home Oil Co. considered plans for further development of holdings of approximately 10,000 acres on the west flank of North Turner Valley. Possibilities of the area were brought into prominence by the completion of Home Oil Co. No. 2 Millarville as the largest crude producer in the field. The company has received several proposals for drilling on its holdings, but a definite decision on these is not expected till the middle of March. The company is negotiating with United States interests also with a view to arranging a partnership in engineering, production and marketing, and in the systematic development of the company's holdings.

Shell Oil Investigates

R. K. Miller, of Los Angeles, representing the Shell Oil Co. of California, arrived in Calgary recently to study the Alberta oil situation for his company.

North Turner Valley

In North Turner Valley the Turner Valley Oil Co. has given Pacalta Oils, Ltd., an option on oil and gas rights on NE quarter Section 6-21-3w5, approximately 2 miles northwest of Home Oil Co. No. 2 producer. The arrangement contemplated drilling of four wells, No. 1 to be started by June 1, with 12½ per cent royalty on gross production to the Turner Valley company.

Mar Jon Oil Co. of Vancouver has taken over 1,700 acres on the Two Pine structure, north and west of Home No. 2, in return for 100,000 shares and $5,000 cash. Acreage is subject to royalties of 15 to 17½ per cent, and No. 1 well will be started before July 1.

Northern Foothills

In the northern foothills, on the Ram River structure west of Rocky Mountain House, Ram River Oils No. 1, Township 38-12w5, is below 900 feet.

Southern Foothills

On the Highwood-Sinclair structure southwest of Turner Valley, Green Valley Oils No. 1 Banner, LSD 6, Section 34-17-3w5, is in hard formation below 6,775 feet with additional small shows of oil and gas.

On the Savannah Creek structure, Anglo-Canadian Oil Co. No. 1, SW quarter Section 20-14-4w5, is below 326 feet.

In the Sinclair Valley area, Sinclair Valley Syndicate No. 1, SW quarter Section 22-16-3w5, is rigging.

Pouce Coupe Test

On the Pouce Coupe structure, in the northern foothills west of Peace River, Guardian Oil Co. No. 1, Section 7-80-12w6, will resume in the spring from 2,560 feet. Before deepening, a production test will be made of a horizon between 2,320 and 2,365 feet, where oil and gas showings were encountered. The Imperial-Pouce Coupe well, drilled more than 16 years ago, at a location 3½ miles distant, encountered a gas flow, estimated 10,000,000 cu. ft. a day, in the same sand, which is in the break between the St. John shales and the Bullhead formation. In the Guardian well, light green crude in fair quantities flowed again at high pressure for some time, and since the well was shut down considerabe crude has accumulated in the casing.

Taber Field

In the Taber field, southern Alberta, considerable activity is planned for the spring. Plains Petroleum No. 2, brought in over a year ago, is maintaining production of around 40 bbls. a day and is crude to Calgary by tankcar in addition to supplying oil for drilling fuel to other wells in the field. Shipments have also been made to the Huff refinery at Lethbridge. R. A. Clancey, president of Plains No. 4, LSD 15, Section 25-9-17w4, standing at 3,515 feet, and No. 5, LSD 2, Section 36-9-17w4, shut down at 747 feet.

In the north end of the Taber field, North Taber Royalties No. 1, LSD 7, Section 10-11-15w4, standing at 3,070 feet, will run 6⅝-inch casing to bottom before deepening. The third water sand contained gas but the bottom sand of the Sunburst showed oil and water with a lot of caving. After casing, the hole will be deepened to the Ellis sand, and possibly the Madison limestone.

South of Taber, Noble Drilling Co. No. 1, LSD 14, Section 33-8-17w4, has 84-foot derrick up and is installing machinery. It will probably spud this month.

Northwest of Barnwell, Border Petroleums No. 1, LSD 5, Section 32-19-17w4, is deepening after getting a show of crude at 2,632 feet.

South of Magrath, Frank Lyons and associates are arranging to complete Lyons-McIntyre No. 1, LSD 14, Section 19-3-21w4, standing at 3,630 feet.

Bridge Dome Abandoned

On the Bridge Dome structure, 13 miles east of Coutts, Anglo-Canadian Oil Co. No. 1 Milk River, LSD 10, Section 4-2-13w4, which got the Madison limestone at 2,442 feet, encountered water 40 feet in, and will be abandoned after deepening to 2,497 feet. A light show of crude and a little gas were met at the lime contact.

Border Fields

In the Lethbridge area, Empire Drilling Co. is preparing to resume on Lethbridge Petroleums No. 1, LSD 12, Section 11-8-22w4, standing for some months at 2,915 feet.

In the Keho Lake area, Keho Dome Oils, headed by Julius Zaetschky of Calgary, will drill No. 1 in LSD 3, Section 18-11-22w4. Location is 1¼ miles west of Hudson's Bay Oil & Gas Co. No. 1, LSD 2, Section 17-11-22w4, which some years ago got a small crude production in a stray sand of the Benton

(Continued on Page 121)

LEGAL

IN THE DISTRICT COURT OF THE UNITED STATES FOR THE EASTERN DISTRICT OF ILLINOIS
IN BANKRUPTCY.

In the matter of E. R. Hagist, a Debtor. } No. 2196-D.

NOTICE OF SALE OF RANCH LANDS AND MINERAL RIGHTS THEREIN.

* * *

PUBLIC NOTICE IS HEREBY GIVEN that pursuant to the order of the Referee in Bankruptcy of the U. S. District Court for the Eastern District of Illinois, the undersigned, Receiver, will offer for sale at public vendue, all his right, title and interest as Receiver in and to an undivided one-half interest in 19,829 acres of land, more or less, known as the Hagist ranch lands, and mineral rights therein, located in McMullen and Duval Counties, Texas, at the Federal Court Room, in the City of East St. Louis, Illinois, on Friday, the 24th day of March, at 2 o'clock P. M., upon the terms and conditions specified in said order of sale.

Said lands consist of all or parts of surveys or sections 1, 2, 3, 4, 4, 5, 6, 7, 8, 9, 10, 11, 13, 16, 17, 18, 20, 39, 57, 108, 121, 122, 123, 124, 125, 126, 127, 265, 267, 268, 269, 271, 314, 320, 467, 480 and 481. A detailed description of said lands may be had upon application to or at the office of the undersigned Receiver, or at the office of the title attorney, 1920 Alamo National Building, San Antonio, Texas. In the opinion of competent counsel, Mr. Knox Miller, title to said lands is merchantable and counsel's opinion and abstracts of title may be examined at the attorney's office, at said 1920 Alamo National Building, San Antonio, Texas.

All bids shall be acceptable to the Receiver and subject to the approval of the Referee in Bankruptcy. The highest bidder must accompany his bid with cash, bank draft or cashier's check or other security in amount equal to 20 per cent of the amount bid.

If the Referee in Bankruptcy deems any bid sufficient and orders a sale confirmed thereon, the purchaser will be required to pay the Receiver the balance of the purchase price over and above the amount submitted with his bid when the confirmation order becomes final.

In the event any sale is confirmed and becomes final, the lands sold will be conveyed subject to general and special taxes for the year 1939 and subsequent, and subject to all valid, subsisting and outstanding leases, including all oil, gas and mineral leases of record, and subject to all easements and contract rights shown of record.

The Receiver will make written report to the Referee in Bankruptcy of the proceedings and the result of the sale and in the event the Referee confirms any sale thereon, the Receiver will make and deliver an appropriate instrument or instruments of conveyance to the purchaser or his nominee upon payment of the balance of the purchase price due.

Inquiries may be addressed to the Receiver at his office, 520 First National Bank Building, East St. Louis, Illinois.

MARTIN F. OEHMKE.
Receiver E. R. Hagist Debtor Estate.

William M. Barret, Inc.

Consulting Geophysicists

Specializing in Magnetic Surveys

Contracts accepted for domestic and foreign projects, using the most improved instrumental and interpretative technique.

GIDDENS-LANE BUILDING -:- SHREVEPORT, LA.

WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well, location, and county—	S. T. R.	Depth	Status—
Moore, E. H., No. 11 Sugar, Santa Maria Valley, S. B.	19-10-34	3,850	sd. sh. drlg.
Moore, E. H., No. 12 Sugar, Santa Maria Valley, S. S.	19-10-34	2,761	sd. sh. drlg.
Getty, G. F., No. 8 Vicente, Santa Maria Valley, S. B.	27-10-34	3,564	sd. sh. drlg.
Gerard & Thompson, No. 1-B, Santa Maria Val., S. B.	27-10-34	1,898	sd. sh. drlg.
Hogan Pet., No. 2 Zabala, Casmalia, Santa Barbara	33- 9-34	1,205	dry; abd.
Hogan Pet., No. 3 Zabala, Casmalia, Santa Barbara	33- 9-34	1,187	dry; abd.
Richfield Oil, No. 1 Tinaquaic, Foxen Can., S. B.	36- 9-32	4,470	sd. sh. drlg.
Barnsdall Oil, No. 5 Magenheimer, Gato Ridge, S. B.	9- 8-32	4,385	cmtd. 2,310
United West. Oil, No. 1 Los Olivos, Santa Barbara	16- 7-30	3,440	hd. sd. drlg.
Litho Oil, No. 1 R. I. E., Capitan, Santa Barbara	5- 4-30	873	sd. sh. drlg.
West. Oil Roy., No. 1 Bryce, Carpinteria, Santa Barb.	29- 4-25	1,750	sd. sh. drlg.
Garvin & Seaman, No. 1 Gauthier, Summerland, S. B.	22- 4-26	1,458	reaming
Merchants Pet., No. 8 Hillside, Sespe, Ventura	1- 4-20	1,715	cleaning out
Ivers, H. A., No. 14 Kentuck, Sespe, Ventura	1- 4-20	970	sd. sh. drlg.
Section 20 Oil, No. 1, Sespe, Ventura	20- 5-19	2,540	reaming
Shomy Oil, No. 1 Hill, Bardsdale, Ventura	32- 4-19	122	sd. sh. drlg.
El Rancho Oil, No. 2 Elkins, Shiells Canyon, Vent.	9- 3-19	3,158	cmtd. 3,053
Continental Oil, No. 10 Grubb, San Miguelito, Vent.	24- 3-24	7,035	sd. sh. drlg.
Rincon Dev., No. 4 State Permit, Rincon, Ventura	7- 3-24	4,150	will redrl.
Tide Water A. O., No. 40 V.L.W., Ventura Ave., Vent.	25- 3-23	7,880	sd. sh. drlg.
Tide Water A. O., No. 14 McGonigle, Vent. Ave., Vent.	23- 3-23	5,750	sd. sh. drlg.
Tide Water A. O., No. 77 Lloyd, Ventura Ave., Vent.	27- 3-23	6,894	sd. sh. drlg.
Tide Water A. O., No. 123 Lloyd, Ventura Ave., Vent.	27- 3-23	5,861	sd. sh. drlg.
Tide Water A. O., No. 124 Lloyd, Ventura Ave., Vent.	23- 3-23	1,996	sd. sh. drlg.
Tide Water A. O., No. 134 Lloyd, Ventura Ave., Vent.	27- 3-23	8,339	recmtd. 8,050
Tide Water A. O., No. 8 Hartman, Ventura Ave., Vent.	22- 3-23	5,550	sd. sh. drlg.
Shell Oil, No. 98 Taylor, Ventura Ave., Ventura	21- 3-23	5,326	fish D.P.
Shell Oil, No. 33 Edison, Ventura Ave., Ventura	28- 3-23	5,129	redrlg. 2,128
Brit. Amer. Oil, No. 7 Bolsa, Ventura Ave., Ventura	22- 3-23	6,770	redrlg. 6,650
Alliance Pet., No. 3 Hisey, Ventura Ave., Ventura	21- 3-23	5,197	sd. sh. drlg.
Lloyd Corp., No. 2 Dabney, Ventura Ave., Ventura	23- 3-23	8,260	sd. sh. drlg.
Cal. Explo., No. 2 Occidental, Lost Hills, Kern	24-26-20	5,397	sd. sh. drlg.
Belridge Oil, No. 35-26-A, North Belridge, Kern	35-27-20	8,452	br. sh. drlg.
Belridge Oil, No. 26-25, North Belridge, Kern	26-27-20	8,500	C.P. 8,403
Belridge Oil, No. 26-39, North Belridge, Kern	26-27-20	6,086	cmtd. 5,875
Belridge Oil, No. 28-2, North Belridge, Kern	28-27-20	8,588	O.S. drlg.
Tide Water A. O., No. 23-3, North Belridge, Kern	22-27-20	7,182	fish D.P.
Richfield Oil, No. 3, North Belridge, Kern	22-27-20	6,990	br. sh. drlg.
Amerada Pet., No. 6 Beer, Blackwells Corner, Kern	21-26-19	4,296	sd. sh. drlg.
Herzog, R. D., No. 1 Den, Devil's Den, Kern	27-25-18	620	sd. sh. drlg.
Standard Oil, No. 1 M. & L., Delano gas field, Kern	3-25-23	2,398	sd. sh. drlg.
Dilamar Oil, No. 3 Quinn, Jasmin, Kern	15-25-27	738	sd. sh. drlg.
D. B. K. Co., No. 1 Kern, Kern River, Kern	34-28-28	469	P.B. 350
Combs Bros., No. 1 Kern, Kern River, Kern	28-28-28	171	sd. sh. drlg.
Helm & Smith, No. 12 Kern, Kern River, Kern	34-28-28	670	O.S. drlg.
Triad Oil, No. 1 A.H.S., Kern River, Kern	19-28-28	1,199	cleaning out
Shell Oil, No. 1 Glide, West Mount Poso, Kern	29-27-28	2,490	sd. sh. drlg.
Richfield Oil, No. 1 Union, Union Ave., Kern	5-30-28	10,196	sd. sh. drlg.
O'Reilly, F., No. 1 Berree, Edison, Kern	5-30-29	4,156	O.S. drlg.
Oils, Inc., No. 1 Cauley, Edison, Kern	16-30-29	4,197	pump 10 b.d.
Standard Oil, No. 1 Jewett, Arvin, Kern	16-31-29	6,270	flow 2,875 b.d.
Texas Co., No. 35-1, KCL, Fruitvale, Kern	35-28-26	7,940	sd. sh. drlg.
Pacific Southwest Oil, No. 1 Dillon, Fruitvale, Kern	27-29-27	3,697	sd. sh. drlg.
Hillview Oil, No. 1 Tejon, Caliente Creek, Kern	11-30-30	2,662	idle
Continental Oil, No. 4-A, KCL, Wasco, Kern	8-27-24	12,970	hd. sh. drlg.
Standard Oil, No. 2 Mushrush, Wasco, Kern	7-27-24	12,488	hd. sh. drlg.
Standard Oil, No. 8-2-B, KCL, Wasco, Kern	17-27-24	9,736	hd. sh. drlg.
Cal. Lands, Inc., No. 1 Salisbury, Buttonwillow, Kern	7-29-24	11,506	cmtd. 11,472
General Pet., No. 3 Van Ness, Rio Bravo, Kern	2-29-25	11,503	O.S. drlg.
General Pet., No. 1 Caldwell, Rio Bravo, Kern	35-28-25	9,795	sd. sh. drlg.
Shell Oil, No. 23-2-A, KCL, Rosedale, Kern	2-29-26	8,190	sd. sh. drlg.
Standard Oil, No. 2 Fleishauer, Greeley, Kern	20-29-26	11,900	P.B. 11,575
Standard Oil, No. 11-16, KCL, Greeley, Kern	20-29-26	10,440	gr. sh. drlg.
Standard Oil, No. 11-17, KCL, Greeley, Kern	18-29-26	8,990	gr. sh. drlg.
Standard Oil, No. 12-6, KCL, Greeley, Kern	30-29-26	8,685	hd. sh. drlg.
Standard Oil, No. 1 Elrich, Greeley, Kern	20-29-26	12,400	br. sh. drlg.
Superior Oil, No. 12, KCL, Greeley, Kern	3-30-26	13,000	sd. sh. drlg.
Shell Oil, No. 81-25-A, KCL, Ten Section, Kern	25-30-25	5,294	sd. sh. drlg.
Shell Oil, No. 23-14-A, KCL, Canal, Kern	14-30-25	5,983	sd. sh. drlg.
Shell Oil, No. 87-4-B, KCL, Canal, Kern	4-30-25	11,890	sd. sh. drlg.
Ohio Oil, No. 10-E, KCL, Canal, Kern	14-30-25	8,320	flow 1,020 b.d.
Richfield Oil, No. 52-32-A, KCL, Tupman, Kern	32-30-25	7,950	sd. sh. drlg.
Union Oil, No. 1-11, KCL, Coles Levee, Kern	11-31-25	9,351	sd. sh. drlg.
Standard Oil, No. 20-1, KCL, Coles Levee, Kern	9-31-25	7,950	sd. sh. drlg.
Ohio Oil, No. 2-F, KCL, Coles Levee, Kern	10-31-25	9,313	O.S. drlg.
Premier Oil, No. 1 Padran, Midway-Sunset, Kern	25-32-23	1,460	sd. sh. drlg.
Honolulu Oil, No. 5-A Vista, Midway-Sunset, Kern	14-32-24	3,024	cleaning out
Hoyt, Otis, No. 10 Sunset, Midway-Sunset, Kern	7-11-23	3,078	hd. sh. drlg.
Fried, Julius, No. 1 Fried, Midway-Sunset, Kern	34-32-24	5,035	recmtd. 4,400
National Oil, No. 32 Midway, Midway-Sunset, Kern	35-32-23	1,491	br. sh. drlg.
Texas Co., No. 33 Sunset, Midway-Sunset, Kern	32-32-24	3,270	sd. sh. drlg.
Standard Oil, No. 7-29 Western, McKittrick, Kern	7-30-22	1,684	sd. sh. drlg.
Standard Oil, No. 7-31 Western, McKittrick, Kern	7-30-22	2,240	pump 140 b.d.
Westco Pet., No. 1 West, McKittrick, Kern	34-30-22	5,990	sd. sh. drlg.
Tide Water A. O., No. 2 S.P., Tejon Ranch, Kern	15-11-19	7,326	P.B. 6,655
Petrol Corp., No. 33-5 Reserve, Tejon Ranch, Kern	33-11-19	8,650	gr. sd. drlg.
Progressive Oil, No. 3, E. Coalinga, Fresno	20-19-15	824	br. sh. drlg.
Foreign Oil, No. 6 Annex, W. Coalinga, Fresno	6-21-15	2,294	sd. sh. drlg.
Kolinga Ref., No. 2 Hill, W. Coalinga, Fresno	14-20-14	1,076	sd. sh. drlg.
Tyler & Cornwell, No. 4 Tyler, W. Coalinga, Fresno	14-20-14	205	sd. sh. drlg.
Ramsey, W. E., No. 2 Fearon, W. Coalinga, Fresno	18-20-15	4,835	will deepen
Jarvis, L. F., No. 2 Leo, W. Coalinga, Fresno	14-20-14	788	sd. sh. drlg.
Amerada Pet., No. 7-17 S.P.L., N. Coalinga, Fresno	17-19-16	6,690	sd. sh. drlg.
Petseahon, No. 31-7-F, S.E. Coalinga, Fresno	7-20-16	5,197	sd. sh. drlg.
Petseahon, No. 35-7-F, S.E. Coalinga, Fresno	7-20-16	6,799	hd. sh. drlg.
Petseahon, No. 22-18-F, S.E. Coalinga, Fresno	18-20-16	5,992	sd. sh. drlg.
Texas Co., No. 1 fee, S.E. Coalinga, Fresno	6-20-16	5,973	sd. sh. drlg.
Standard Oil, No. 71-13-C fee, S.E. Coalinga, Fresno	13-20-15	5,905	sd. sh. drlg.
Standard Oil, No. 73-13-C fee, S.E. Coalinga, Fresno	13-20-15	5,161	sd. sh. drlg.
Superior Oil, No. 3 fee, S.E. Coalinga, Fresno	7-20-16	7,229	br. sh. drlg.
Superior Oil, No. 4 fee, S.E. Coalinga, Fresno	7-20-16	6,987	sd. sh. drlg.
K. N. D. A., No. 54-24-H, Kettleman North, Fresno	24-21-16	9,860	sd. sh. drlg.
K. N. D. A., No. 6-16-Q, Kettleman North, Kings	16-22-18	8,185	C.P. 7,925
K. N. D. A., No. 47-16-Q, Kettleman North, Kings	16-22-18	6,070	br. sh. drlg.
K. N. D. A., No. 36-18-Q, Kettleman North, Kings	18-22-18	7,190	br. sh. drlg.
K. N. D. A., No. 78-22-Q, Kettleman North, Kings	22-22-18	7,960	O.S. drlg.
Standard Oil, No. 56-1-P, Kettleman North, Kings	1-22-17	7,770	gr. sd. drlg.
Standard Oil, No. 76-7-Q, Kettleman North, Kings	7-22-18	7,165	gr. sd. drlg.
Standard Oil, No. 74-17-Q, Kettleman North, Kings	17-22-18	5,098	sd. sh. drlg.
Standard Oil, No. 81-19-Q, Kettleman North, Kings	19-22-18	5,180	sd. sh. drlg.
Standard Oil, No. 41-21-Q, Kettleman North, Kings	21-22-18	2,143	sd. sh. drlg.
Standard Oil, No. 83-21-Q, Kettleman North, Kings	21-22-18	2,698	sd. sh. drlg.
Cal. Pet. Prod., No. 1 Irons, Cuyama, San Luis Obispo	19-10-24	1,830	redrlg. 1,640
Newton, S. M., No. 1 Stafford, Panorama, S. L. Obispo	18-31-21	998	sd. sh. drlg.
Epco, Inc., No. 1 Ajax, Union, San Luis Obispo	27-26-13	4,581	br. sh. drlg.
Texas Co., No. 1 Arroyo Seco, Greenfield, Monterey	11-19- 5	790	sd. sh. drlg.
Amalgamated O. & G., No. 5 Konda, Richgrove, Tulare	23-24-27	1,770	br. sh. drlg.

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well, location, and county—	S. T. R.	Depth	Status—
Antelope Valley Oil, No. 1 Palmdale, Los Angeles	17- 6-12	1,357	sd. sh. drlg.
Texas Co., No. 1 Anderson, Ocean Park, Los Angeles	17- 2-15	7,335	sd. sh. drlg.
Rolling Hills Pet., No. 1 Weston, Palos Verdes, L. A.	27- 4-14	5,406	sd. sh. drlg.
Alford Dev., No. 31 Bell, Torrance, Los Angeles	23- 4-14	5,122	sd. sh. drlg.
Cinco Oil, No. 1 Woodruff, Torrance, Los Angeles	23- 4-14	3,600	cleaning out
Conar, H. G., No. 1 Conrell, Torrance, Los Angeles	23- 4-14	4,890	O.S. drlg.
Campeet Oil, No. 17-A, Kleinmyer, Torrance, L. A.	23- 4-14	3,856	redrlg. 2,095
Critton & Colvin, No. 1 Clark, Torrance, Los Angeles	23- 4-14	5,157	O.S. drlg.
Elliott, D. W., No. 10 Kettler, Torrance, Los Angeles	23- 4-14	5,146	O.S. drlg.
Hathaway Oil, No. 1 Myers, Torrance, Los Angeles	23- 4-14	4,950	sd. sh. drlg.
Kern Pet., No. 1 Neher, Torrance, Los Angeles	23- 4-14	5,120	cleaning out
Kirk, W. A., No. 9 Lomita, Torrance, Los Angeles	23- 4-14	5,095	O.S. drlg.
Kilgore, S. H., No. 1 Mitchell, Torrance, Los Angeles	23- 4-14	3,980	cleaning out
L. M. S. Oil, No. 1-A Kettler, Torrance, Los Angeles	23- 4-14	5,170	O.S. drlg.
McCaslin, W. E., No. 1 White, Torrance, Los Angeles	23- 4-14	487	sd. sh. drlg.
Pacific West. Oil, No. 12 Marble, Torrance, L. A.	15- 4-14	4,932	pump 245 b.d
Pettijohn, J. E., No. 2 Marilou, Torrance, L. A.	23- 4-14	5,161	O.S. drlg.
Peters Roy. Corp., No. 1 Bass, Torrance, Los Angeles	23- 4-14	4,880	sd. sh. drlg.

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Acd., acidized.
B.O., barrels of oil.
B.P.D., barrels per day.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
B. ck., bottom choke.
Br. sh., brown shale.
B.S., basic sediment.
C.&P., cellar and pits.
Cd. or Crd. cored.
C.D., correct depth.
Cg., coring.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg. or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.S.T., drill stem test.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
L.D.D., later drilled deeper.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., owell drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging back.
P.B.P., pulling or pulled big pipe.
P.L., pipe line.
P.L.O., pipe line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Recvd., recovered.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtrk. or St., sidetracking.
S.D.P.L., shut down for pipe line.
S.D.O., or S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing)
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T. ck., top choke.
T.P., tubing pressure.
Tr., tract.
Tstd., tested.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C., or W.O.C.S., waiting on cement to set.
W.O.O., waiting for orders.
W.P., working pressure.
W.S.O., water shutoff.
W.S.S.O.K., water shutoff O.K.
W.S.R. or W.O.S.R., awaiting standard rig.
Wtr., water.

Rilling & Co., No. 1 H. & H., Torrance, L. A.	23-	4-14	3,980	redrlg. 3,897
Standard Oil, No. 1-11 Marble, Torrance, L. A.	22-	4-14	3,825	rigging up
Vesta Pet., No. 1 Bruhn, Torrance, Los Angeles	23-	4-14	4,798	sd. sh. drlg.
Woolner Oil, No. 7 Lomita, Torrance, Los Angeles	23-	4-14	5,000	O.S. drlg.
Wilson, Ray, No. 3 Lomita, Torrance, Los Angeles	23-	4-14	3,995	sd. sh. drlg.
C.-C. M. O. Co., No. 41, Torrance, Los Angeles	15-	4-14	4,780	sd. sh. drlg.
C. C. M. O. Co., No. 51, Torrance, Los Angeles	14-	4-14	5,028	O.S. drlg.
C. C. M. O. Co., No. 12 Kettler, Torrance, Los Angeles	14-	4-14	3,825	rigged up
Texas Co., No. 4 Oakley, Harbor City, Los Angeles	30-	4-13	3,295	sd. sh. drlg.
Union Oil, No. 25 Callender, Dominguez, L. A.	33-	3-13	4,616	cmtd. 4,390
Union Oil, No. 66 Callender, Dominguez, L. A.	33-	3-13	5,590	sd. sh. drlg.
Union Oil, No. 11 Carson, Dominguez, Los Angeles	33-	3-13	488	sd. sh. drlg.
Union Oil, No. 49 Hellman, Dominguez, Los Angeles	33-	3-13	9,474	sd. sh. drlg.
Shell Oil, No. 12 Reyes, Dominguez, Los Angeles	33-	3-13	4,179	pump 225 b.d.
Shell Oil, No. 97 Reyes, Dominguez, Los Angeles	33-	3-13	9,257	sd. sh. drlg.
Barnsdall Oil, No. 12 Rosecrans, Rosecrans, L. A.	20-	3-13	7,415	O.S. drlg.
Bankline Oil, No. 2 Kirby, Rosecrans, Los Angeles	20-	3-13	7,701	O.S. drlg.
Metcalfe Oil, No. 1 Bradford, Rosecrans, L. A.	20-	3-13	5,994	sd. sh. drlg.
Union Oil, No. 31 Rosecrans, Rosecrans, L. A.	19-	3-13	3,488	sd. sh. drlg.
Universal Consd., No. 10 Trust, Rosecrans, L. A.	18-	3-13	7,757	O.S. drlg.
Superior Oil, No. 12 Maxwell, Rosecrans, L. A.	19-	3-13	7,696	cleaning out
Howard Oil, No. 1 H. O., Rosecrans, Los Angeles	20-	3-13	5,592	sd. sh. drlg.
Basin Oil, No. 4 Club, Potrero, Los Angeles	34-	2-14	4,290	sd. sh. drlg.
Barnsdall Oil, No. 5 R. S. F., Newhall, Los Angeles	26-	4-17	6,470	O.S. drlg.
Standard Oil, No. 1 Ward, Aliso Canyon, Los Angeles	27-	3-16	2,394	sd. sh. drlg.
Tide Water A. O., No. 2 Porter, Aliso Canyon, L. A.	27-	3-16	2,190	sd. sh. drlg.
Union Oil, No. 1-27 Orcutt, Aliso Canyon, L. A.	27-	3-16	2,398	sd. sh. drlg.
Mangrum & Page, No. 1 Lintz, Newhall, Los Angeles	4-	3-15	229	sd. sh. drlg.
General Pet., No. 34 Harbor, Wilmington, L. A.	2-	5-13	3,720	sd. sh. drlg.
General Pet., No. 3 Patten, Wilmington, L. A.	2-	5-13	3,618	will redrl.
General Pet., No. 2 P.E., Wilmington, L. A.	2-	5-13	1,684	sd. sh. drlg.
Dunlap Oil, No. 3-D-U.P., Wilmington, Los Angeles	3-	5-13	1,893	sd. sh. drlg.
F. A. Pet., No. 1 Franco, Wilmington, Los Angeles	29-	4-13	3,725	sd. sh. drlg.
Haines, A., No. 1 Harbor, Wilmington, Los Angeles	35-	4-13	2,660	sd. sh. drlg.
Padreson Oil, No. 1 McClosky, Wilmington, L. A.	32-	4-13	3,662	flow 260 b.d.
Richfield Oil, No. 22 P.D., Wilmington, Los Angeles	2-	5-13	2,294	sd. sh. drlg.
Royalty Ser. Corp., No. 8-A Nelson, Wilmington, L. A.	4	5-13	5,488	sd. sh. drlg.
Sonwell Oil, No. 5 Harbor, Wilmington, L. A.	2-	5-13	4,016	cleaning out
Signal O. & G., No. 1, L.B.-Allen, Wilmington, L. A.	2-	5-13	2,670	sd. sh. drlg.
Signal O. & G., No. 1-D, L.B.-U.P., Wilmington, L. A.	3-	5-13	2,690	sd. sh. drlg.
Signal O. & G., No. 2-D, L.B.-U.P., Wilmington, L. A.	3-	5-13	2,565	sd. sh. drlg.
Signal O. & G., No. 2 L.B.-P.D., Wilmington, L. A.	2-	5-13	1,998	sd. sh. drlg.
Union Pacific R. R., No. 102, Wilmington, L. A.	34-	4-13	3,160	sd. sh. drlg.
Union Pacific R. R., No. 107, Wilmington, L. A.	3-	5-13	2,632	sd. sh. drlg.
Union Pacific R. R., No. 108, Wilmington, L. A.	4-	5-13	2,468	sd. sh. drlg.
Universal Consd., No. 7 Newport, Wilmington, L. A.	2-	5-13	4,208	flow 820 b.d.
Westgate Greenland Oil, No. 5-A, Wilmington, L. A.	3-	5-13	2,475	sd. sh. drlg.
Grady, R. R., No. 1 Associates, San Pedro, L. A.	23-	5-14	614	cmtd. 415
Ridge Oil, No. 1 Club, Montebello, Los Angeles	3-	2-12	2,090	sd. sh. drlg.
Olympic Refining, No. 1 Smith, Montebello, L. A.	2-	2-12	7,136	flow 495 b.d.
St. Helens Pet., No. 30 Monterey, Montebello, L. A.	2-	2-12	6,756	O.S. drlg.
St. Helens Pet., No. 4 Mulholland, Montebello, L. A.	2-	2-12	6,324	O.S. drlg.
Standard Oil, No. 2 Braun, Montebello, Los Angeles	2-	2-12	6,735	flow 250 b.d.
Standard Oil, No. 5 Braun, Montebello, Los Angeles	2-	2-12	6,290	sd. sh. drlg.
Standard Oil, No. 2 Kaufman, Montebello, L. A.	2-	2-12	6,665	fish bailer
Standard Oil, No. 2 Harvey, Montebello, L. A.	2-	2-12	6,450	sd. sh. drlg.
Standard Oil, No. 4 Harvey, Montebello, L. A.	2-	2-12	6,673	fishing
Union Oil, No. 1 Calkins, Montebello, Los Angeles	2-	2-12	7,160	flow 1,580 b.d
Union Oil, No. 4 Paul Howard, Montebello, L. A.	2-	2-12	6,694	flow 685 b.d.
Union Oil, No. 3 Wilcox, Montebello, Los Angeles	2-	2-12	6,699	sd. sh. drlg.
Union Oil, No. 30 La Merced, Montebello, Los Angeles	1-	2-12	7,370	sd. sh. drlg.
Stanley Oil, No. 1 Montebello, Montebello, L. A.	2-	2-12	4,890	redrlg. 4,598
Pongratz Oil, No. 1 Newmark, Montebello, L. A.	3-	2-12	6,710	flow 470 b.d.
Texas Co., No. 5 Mulholland, Montebello, Los Angeles	2-	2-12	5,990	sd. sh. drlg.
Herley-Kelly, Inc., No. 2 Burke, Montebello, L. A.	2-	2-12	7,030	O.S. drlg.
Wood-Callahan Oil, No. 1 Harris, Montebello, L. A.	2-	2-12	2,984	sd. sh. drlg.
Bush Oil, No. 1 Olds, Montebello, Los Angeles	3-	2-12	2,883	sd. sh. drlg.
Texas Co., No. 1-13-A Smith, Anaheim, Orange	8-	4-10	8,250	fish D.P.
Brea Canyon Oil, No. 49 Brea, Brea Canyon, Orange	2-	3-10	4,891	flow 55 b.d.
Battersby, J. M., No. 1 Associates, Carmenita, Orange	21-	3-11	8,950	P.B. 7,500
Standard Oil, No. 68 Emery, W. Coyote, Orange	24-	3-11	280	sd. sh. drlg.
Southwest Expl., No. 9 State, Hunt. Beach, Orange	4-	6-11	3,483	sd. sh. drlg.
Southwest Expl., No. 10 State, Hunt. Beach, Orange	4-	6-11	2,967	sd. sh. drlg.
Dragon Oil, No. 1 Jauman, Hunt. Beach, Orange	36-	5-11	4,625	cmtd. 4,557
Texas Co., No. 10 Brown, Huntington Beach, Orange	11-	6-11	3,784	P.B. 3,470
Wilshire Oil, No. 2 H.B., Hunt. Beach, Orange	10-	6-11	4,496	sd. sh. drlg.
Wilshire Oil, No. 15 H. B., Hunt. Beach, Orange	10-	6-11	5,097	sd. sh. drlg.
Patos Drlg., No. 1 Graham, Sunset Beach, Orange	21-	5-11	5,429	hd. sh. drlg.
Continental Oil, No. 41 Bixby, Seal Beach, Orange	11-	5-12	5,300	pump 325 b.d.

KANSAS

Week Ending March 4 (Descriptions are East unless marked otherwise)

Barber County

Barbara Oil Co. No. 1 Wilson, C SE Sec. 17-33-13. K.C. 4,097 ft.; cg. 4,673 ft.
Olson Oil Co. No. 1 Coffman, C NW NE Sec. 25-31-12w. Drlg. 4,268 ft.

Barton County

Central Pet. and Vernon O. & G. No. 1 Miller, SE SW SE Sec. 17-16-13w. Drlg. 2,385 ft.
Gulf Oil No. 1 Louis, C N½ NW SW Sec. 2-20-12w. Arb. 3,347 ft.; S.S.O. 3,373 ft.; T.D. 3,375 ft.; shot 3,385-63 ft. and C.O.
Long & Johnson No. 1 Eveleigh, SW SW NE Sec. 3-18-14w. Lans. 3,100 ft.; Arb. 3,338 ft.; T.D. 3,367 ft.; P. 66 B. O. in 8 hrs.; pot. 197 B.O.
Paul Martin No. 1-A Feltes, NW SW SE Sec. 8-16-12w. Drlg. 2,685 ft.
I. W. Murfin No. 1 Birzer, NE SW Sec. 21-19-11w. Pay 3,130 ft. and 3,152-54 ft.; 1,200 ft. O.I.H. in 8 hrs.

Butler County

Bowland & McCoy No. 1 Frankson, SE SW Sec. 2-29-6. S.D. 165 ft.
Hay, Hall & Table-Mesa Oil Co. No. 1 Ferrell, SW NW NE Sec. 28-28-8. Drlg. 1,815 ft.

Cowley County

Ben Gralapp et al No. 1-A Clark, NW NW NE Sec. 11-31-3e. T.D. 3,248 ft.; fsg. 3,200 ft.
Mead Bros. No. 1 Julian, NE SE NW Sec. 16-33-3. Drlg. 2,300 ft.
Phillips Pet. Co. No. 1 Bernard, SE SE NE Sec. 19-33-6. Drlg. 3,273 ft.

Dickinson County

Franks et al No. 1 Huffman, NW NW SW Sec. 11-13-1. Drlg. 1,960 ft.; (last report).

Ellis County

Bridgeport No. 1 Froelich, CWL SW Sec. 34-12-16w. Drlg. 2,858 ft.
Darby Pet. No. 1 Peavey, NW NW NE Sec. 24-11-18w. T.D. 3,456 ft.; swb. 110 B.O. in 15 hrs.

Graham County

Continental Oil Co. No. 1 Drumm Comm. Co., SE SE NE Sec. 16-9-21w. Lans. 3,390 ft.; Arb. 3,679-94 ft.; T.D. 3,702 ft.; pmp. 149 B.O. in 8½ hrs.; to acdz.
Continental Oil Co. No. 1 Putnam Inv. Co., CWL SW Sec. 3-9-21w. Drlg. 3,050 ft.

Greenwood County

Hancock et al No. 1 Rousch, C S½ SE NW Sec. 8-28-13. T.D. 1,530 ft.; D.&A.

Leavenworth County

John Hardaway No. 1 Scheller, SW SE SW Sec. 30-10-22. S.D. 345 ft.

McPherson County

Marylyn Oil No. 1 Dixon, NW NE NW Sec. 7-19-2w. T.D. 3,018 ft.; acd.; P.& F. 36 B.O. in 24 hrs.
Phillips Pet. Co. No. 1 Esau, CEL W½ NE Sec. 7-21-4w. Drlg. 2,990 ft.
Sinclair Prairie No. 1 Martins, CWL SW Sec. 20-21-3w. Drlg. 285 ft.

Marion County

Johnson et al No. 1-A Miltz, SW SW SW Sec. 24-17-4. T.D. 2,485 ft.; shot and C.O.; H.F.W.
Vickers Pet. No. 1 Sutphin, SW SE SW Sec. 30-22-4. Chat 2,487 ft.; T.D. 2,643 ft.; D.&A.

Mead County

Pacific Midwest Oil No. 1 Rexford, NE SE SW Sec. 8-30-29w. S.D. 1,435 ft.

Osage County

J. M. Edwards No. 1 Detrick (O.W.D.D.), C NW SE Sec. 21-14-15. O.T.D. 1,200 ft.; S.D. 1,200 ft.

Ottawa County

Babcock Oil No. 1 Copeman, NW NW Sec. 18-10-2w. Miss. 2,835 ft.; H.F.W. 3,302-10 ft.; S.D. for csg. 3,480 ft.

Pratt County

Champlin Ref. Co. No. 1 Elliott, SW NE Sec. 26-27-14w. Fsg. 4,857 ft.

Reno County

Barnsdall Oil Co. No. 1 Krehbiel, NE NE NE Sec. 18-25-5w. Lans. 2,735 ft.; Vla. 3,832 ft.; Simp. 3,863 ft.; Arb. 3,954 ft.; no shows.

Rice County

McPherson Drlg. Co. No. 1 Cramm, SE SE SW Sec. 15-19-9w. Drlg.
Spurrier & Bruce No. 1 Cary, NE NW NW Sec. 30-18-8w. O.W.D.D.; O.T.D. 1,530 ft.; S.D. 1,680 ft.

Rooks County

Broadview Oil No. 1 Beardsmore, NW SE SW Sec. 2-9-16w. Drlg. 535 ft.
Phillips Pet. Co. No. 1 Tanzey, C NW SW Sec. 25-8-18w. Arb. 3,418-3,423 ft.; T.D. 3,424 ft.; acd. and swb. 21 B.F.

Russell County

Central Pet. No. 1 Karst, SE NW NE Sec. 21-15-13w. Drlg. 1,640 ft.
Phil-Han No. 1 Weimeister, SW Sec. 13-14-13w. Top pay 2,655 ft.; perf. and acd. and swb. ½ B.O.P.H.; to P.B.
R H. Shields No. 1-A Gross, CSL SW SE Sec. 5-15-13w. Lans. 2,929 ft.; T.D. 2,976 ft.; P.B. 2,900 ft.; P. 201 B.O. in 8 hrs.; pot. 603 B.O.P.D.; gr. 38; comp.

Saline County

Central States Oil Co. No. 1 Crawford, NW SW NE Sec. 26-13-3w. Drlg. 1,100 ft.

Sedgwick County

Century Pet. Co. No. 1 Wilke, SW SE SW Sec. 1-29-2. S.D. 700 ft.
Frank Hudson et al No. 1 Fulton, NE SE Sec. 35-28-1e. S.D. 2,356 ft.

Shawnee County

W. M. McKnab No. 1 Fritz, SW SE NW Sec. 4-12-14. Drlg. 1,600 ft.

Stafford County

Continental Oil No. 1 Russell, SW SW NE Sec. 13-25-13w. Arb. 4,024 ft.; 3,975 ft. O.I.H.; S.D. for stge.; T.D. 4,072 ft.
Stanolind O. & G. Co. No. 1 Curtis, St cor. Sec. 31-21-12w. Viola 3,544 ft. Arb. 3,638 ft.; R.U.S.T. 3,640 ft.
Virginia Drlg. Co. No. 1 Schlockter-meyer, SE NW Sec. 7-21-11w. Arb. 3,347 ft.; S.S.O. 3,469 ft.; 600 ft. F.I.H at 3,463 ft.

Wabaunsee County

Scheu & Tague et al No. 1 Aye, NW SW NW Sec. 10-12-8. S.D. 488 ft.

Woodson County

Roby et al No. 1 Meairs, SW SW NW Sec. 21-25-14. S.D. 400 ft.
M. J. Trott No. 1 Abbott, NW NE NE Sec. 21-25-14e. Drlg. 1,325 ft.

NEBRASKA

Pawnee County

Blazer & McClure et al No. 1 Allen, NW NE SW Sec. 16-1n-10e. Bart. sd. 40 ft.; Miss. L. 149 ft.; Arb. 789 ft.; T.D. 801 ft.; lost hole and shot off csg.; P.B. to 450 ft.; 100 gal. acd. and 1,000 gal acd.; C.O.

Richardson County

H. C. Stephens and E. Uhri No. 1 Harlow, C SE NE Sec. 32-1n-13e. O.W.D. D.; S.D. 780 ft.

Hitchcock County

C. L. Price No. 1 Carter, SE NE SW Sec. 35-2n-32w. Drlg. 3,150 ft.

OKLAHOMA

Week Ending March 4

NORTHERN OKLAHOMA

Atoka County

Giblett No. 1 Rich, SE SE SW Sec. 2-1-12. W.O.C. 704 ft.

Caddo County

Texas Co. No. 1 Smith, C NE NW Sec. 2-5-12w. T.D. 2,556 ft.; S.D.O.

Cleveland County

English Drlg. Co. No. 1 Rice, C NE NE Sec. 3-10-2w. T.D. 1,400 ft.; D.&A.
Harper, Turner et al No. 1 Taylor, SE NE NW Sec. 23-8-2w. Woodford 7,090 ft.; Vla. 7,620 ft.; Simp. 7,680 ft.; dolo. 7,750 ft.; T.D. 7,828 ft.; S.D.; reprs.
Nels-Burrton No. 1 Hirsch, NW NW NE Sec. 17-9-2w. O.W.P.B.; O.T.D. 7,692 ft.; T.D. 7,695 ft.; tstg.

Comanche County

Ker-Lyn Oil Co. No. 1 Laging, C NE SW Sec. 30-4-9w. Drlg. 3,530 ft.
Mid Night Oil No. 1 Howe, NW NW NE Sec. 30-2-13w. O.W.D.D.; O.T.D. 703 ft.; T.D. 773 ft.; S.S.O. in sd.; S.D.
Ed Parsons No. 1 Stephens, C NW SW Sec. 29-4-9w. Drlg. 200 ft.

Garfield County

Champlin Ref. Co. No. 1 Allen, SE SE SE Sec. 26-24-8w. Drlg. 6,451 ft.
Hughes Drlg. Co. No. 1 Meisner, C NE NW Sec. 10-20-4w. Vla. 5,705 ft.; 1st Wlx. 5,823-65 ft.; T.D. 5,894 ft.; to run lnr.

Garvin County

H. R. Hollenbach et al No. 1 Butterly, NE NE SE Sec. 22-1n-1e. 3,218,000 cu. ft. gas; drlg. 3,205 ft.; S.D.; repairs.
Ker-Lyn Oil Co. No. 1 Butterly, NE NE SE Sec. 22-1-1. O.W.D.D.; O.T.D. 3,205 ft.; to D.D.

Grady County

Carter Oil Co. et al No. 1 Smith C-58, C SE SW Sec. 26-5-8w. S.S.O. 5,329-58 ft.; S.O. 5,433 ft.; cd. 5,964-76 ft.; rec. sh.; cd. 6,351-76 ft.; rec. hd. sd.; T.D. 6,613 ft.; set 9-in. csg. 6,602 ft.; W. O.C.
Ed Parsons No. 1 McKenney, SE SE SW Sec. 30-3-8w. Drlg. 253 ft.

Hughes County

Skelton et al No. 1 Gilmore, C N½ NE SE Sec. 7-5-9. Drlg. 552 ft.

Kay County

Cooper Drlg. Co. No. 1 Caughlin, SE NE SW Sec. 30-25-1. Drlg. 135 ft.
Crawford No. 1 Boehl, SE SE NW Sec. 34-27-2w. T.D. 1,040 ft.; fsg.
C. C. Nye No. 1 Wolfenbarger, SW NW SW Sec. 16-27-4. T.D. 3,201 ft., sd.
Kaw Oil Co. No. 1 Wolfenbarger, NW NW SE Sec. 9-27-4. T.D. 60 ft.; S.D.; rprs.

Kingfisher County

K. A. Ellison No. 1 Baker, NE NE SE Sec. 20-19-5w. Drlg. 220 ft.
Ace Gutowsky No. 1 Lankford, NE NE SE Sec. 34-17-6w. Oswg. 6,630 ft.; drlg. 6,905 ft.

Kiowa County

C. J. Hagerling No. 1 Kimray, SW SW NW Sec. 36-5-18w. T.D. 500 ft.; recvd. bit and S.D.

McIntosh County

Scruggs et al No. 1 Lanning, SE SW SW Sec. 19-12-15. Spd.

Murray County

M. A. Saunders No. 1 Vanderslice, C SW SW Sec. 25-2-2. R.U.R.; T.D. 102 ft.

Muskogee County

Heydrick No. 1 Paschall, NE SE NW Sec. 22-13-19. S.D. 1,446 ft.
Petroleum No. 1 Scott, SE SW SW Sec. 14-13-19. Mch.

Okfuskee County

Carter & Hight No. 1 Rogers, SW SW SW Sec. 6-13-8. T.D. 2,850 ft.; P.B. 2,510 ft.; W.O.C.
I. T. I. O. No. 1 Palmer, NE SE NW Sec. 5-10-9. Drlg. 1,455 ft.

Oklahoma County

E M. Eldridge No. 1 White, C NE NE Sec. 30-11-1. Drlg. 4,585 ft.
O. A. Walters No. 1 Olmstead, C E½ SE NW Sec. 12-14-3w. Spd.

Okmulgee County

Jim Wise Drlg. Co. No. 1 Morrow, SW NW NE Sec. 16-15-13. 3,000,000 cu. ft. gas 1,930-38 ft.; decreased to 1,000,000 cu. ft. at 1,985 ft.; T.D. 1,985 ft.; S.D.

Pawnee County

Ed Kelly No. 1 Hill, SW SW SE Sec. 1-21-5. T.D. 1,780 ft.; S.D.

Payne County

Starr O. & G. Co. No. 1 Georgia, SE SW NE Sec. 35-18-4. 1st Wlx. 4,051 ft.; 2d 4,083 ft.; T.D. 4,123 ft.; Skinner sd 3,463-93 ft.; P.B. 3,494 ft.; perf. 3,338 ft. in Prue; no incr.; ga. 1,880,000 cu. ft. gas and S.S.O.; comp.

Pittsburg County

Phillips Pet. Co. No. 1 Hubacker, C NW NE Sec. 11-7-15. Drlg. 5,393 ft.

Pontotoc County

Union Dev. Co. No. 1-A Abbott, SW NW NE Sec. 34-3-6. S.D. 4,100 ft.
L. Walker No. 1 King, SW SE NW Sec. 5-4-7. Drlg. 463 ft.

Pottawatomie County

Grimes et al No. 1 Dye, NW NW SE Sec. 2-5-5. Wlx. 3,355 ft.; T.D. 3,379 ft.; to test Hntn. at 2,660 ft.
J. E. Trigg No. 1 Truesdell, SW SW SE Sec. 21-7-5. Drlg. 2,240 ft.
Wood Oil Co. No. 1 Peters, SW SE NW Sec. 28-8-4. Wlx. 3,540 ft.; dolo. 4,365 ft.; p. 40 B.O. and 60 B.W. in 24 hrs.

Seminole County

Atlantic Ref. Co. No. 1 Atkinson, NW NW SW Sec. 17-6-6. Misener 3,697 ft.; Viola 3,718 ft.; T.D. 4,023 ft.; P.B. 3,819 ft.; drld. out to 3,839 ft.; acdz. and S. 127 B.O. and 90 B.W. in 15 hrs.
Atlantic Ref. Co. No. 1 Jimmey, SE NW NE Sec. 21-7-6. Loc.
Burke-Greis No. 1 Harjoche, NE NE SW Sec. 19-8-7. Drlg.
H. S. Moss No. 1 Leachman, C N½ SE NE Sec. 34-10-6. Woodford 4,252 ft.; Hntn. 4,303 ft.; T.D. 4,630 ft.; est. 600 B.O.P.D.; S.I. for stge.
W. C. Wood No. 1 Aldridge, SW NW NE Sec. 5-8-8. T.D. 1,910 ft.; H.F.W.; S. D.O.

Sequoyah County

Thompson Brs. No. 1 Ruby, NW NW NE Sec. 30-12-22. T.D. 1,050 ft.; rng. 8-in.

Stephens County

Phillips Pet. Co. No. 1 Culbertson, NW NW SE Sec. 4-1-5w. Drlg. sd.&sh. 5,023 ft.

Texas County

Republic Nat. Gas Co. No. 1 Dulabohn, C Sec. 21-6n-15ecm. Drlg. 2,365 ft.
Republic Nat. Gas Co. No. 1 Judd, CSL SW Sec. 24-6n-15ecm. T.D. 2,870 ft.; gas 7,100,000 cu. ft.

Washita County

Continental Oil Co. No. 1 Proctor C NW Sec. 28-10-20w. T.D. 10,195 ft.; ran Schlm.; set csg. 10,171 ft.; W.O.C.
L. B. McWhirter No. 1 fee, NW SW SW Sec. 34-8-19w. T.D. 2,190 ft.; S.D.

SOUTHERN OKLAHOMA

Carter County

Pure Oil Co. No. 1 Noble, NE SE Sec. 35-3s-1e. Woodford 4,289 ft.; Hunton 4,638 ft.; Vla. 5,014 ft.; drlg. Vla. 5,705 ft.

Choctaw County

Clyde Ross et al No. 1 Hardy, SE SE NW Sec. 21-7s-15. S.D. 1,406 ft.

Jefferson County

H. W. Weir No. 1 Carmichael, NE NE SW Sec. 23-7s-7w. W.O.C. 102 ft.

Marshall County

Hughes et al No. 1 Vittitto, C NE SE Sec. 11-5s-4e. O.W.D.D.; O.T.D. 7,100 ft.; S.D.O.

Murray County

A. G. Carter No. 1 Vensonite, 1,170 ft. W and 150 ft. S. Sec. 34-1s-2e. S.S.O.; T.D. 1,295 ft.; D.P. stk.

Tillman County

Smith No. 2 Hammel, NE NW NW Sec. 6-5s-15w. T.D. 2,380 ft.; recd. D.P. and S.D.

ARKANSAS

Columbia County

Atlantic Ref. Co. No. 1 A. S. Crisp, NW cor. NW NE Sec. 23-17-20. Drlg. 5,570 ft.
Atlantic Ref. Co. No. 1-B Garrett, C NW NW Sec. 24-17-20. Set 16-in. csg. 130 ft.; drlg. rd.&gr. sh. 6,412 ft.
Hassie Hunt No. 1 Tally, Sec. 14-17-20. Set 16-in. csg. 135 ft.; W.O.C.
Normandie Oil Co. No. 1-B L. Garrett, C NE SW Sec. 13-17-20. Set 16-in. csg. 120 ft.; drlg. rd.&gr. sh. 4,405 ft.
Alice Sydney Oil Co. No. 1 Crisp, Sec. 23-17-20. 16-in. csg. 127 ft.; drlg. sdy. sh. 7,295 ft.
Southwood Oil Co. No. 1 L. A. Grelling, C NE NW Sec. 23-17-20. Set 16-in. csg. 139 ft.; drlg. 1,920 ft.
Southwood Oil Co., Inc., No. 2 J. O. Hutcheson, C SE SW Sec. 14-17-20. 16-in. csg. 135 ft.; T. Bknr. 7,318 ft.; cd. 13 ft. ool. L.; odor gas; drlg. ahd.
Standard Oil Co. of La. No. 1 M. Harris, NE cor. NE SW Sec. 15-17-19. R.U.
Tide Water Oil Co. No. 1 Price, C NE SW Sec. 15-18-19. R.U.

Craighead County

Tannark, Inc., No. 1 Ruby M. Martin, 580 ft. NL, 80 ft. EL, Sec. 35-14n-3e. Fsg. for bit 1,735 ft.

Hot Spring County

John H. James No. 1 Sturgess Lbr. Co., SW cor. SW SE Sec. 24-6-18. 10-in csg. 58 ft.; cd. hd, dense gr. L. 964-78 ft.; T.D. 1,048 ft.; S.O. reported 480-82 ft. and 819-21 ft.; hd. sd.; S.D.; W. O. core bbl.

Lafayette County

Standard Oil Co. of La. No. 5 McKean, SW cor. NW SE Sec. 7-16-22. Set 13⅜-in. csg. 199 ft.; W.O.C.

Little River County

C. & M. Drlg. Co. No. 1 Strawn, SW cor. SE Sec. 20-10-32. Cd. 1,270-80 ft.; sh.& wtr. sd.; reported S.O. 1,365-70 ft.; S.D. 1,500 ft.; fuel.
Joe G. Strahan et al No. 2 Dierks Lbr. Co., Sec. 21-12-28. S.D. for D.S. 3,797 ft.

Lonoke County

Lonoke-Prairie Dev. Co. No. 1 T. Young, C NW NW Sec. 8-3n-7w. Hole clean; U.R. 8¼-in. csg. 236 ft.; T.D. 300 ft., sd.; S.D.
W. L. Tedford No. 1 Anderson, 8-in. 400 ft.; arng. run 5-in. csg. on pkr. to S.O. wtr. flw.; prep. run 5-in. csg. to shut off wtr., 950 ft.

Miller County—Rodessa

Berkshire Oil Co. No. 2 Watson, NE SE Sec. 2-20-28. Sat. L. 6,205-35 ft.; set 5½-in. csg. 6,203 ft.; drlg. plug 6,235 ft.
Gerhig Co. No. 4 Mitchell, SE SW Sec. 2-20-28. Sat. L. 6,177-6,202 ft.; set 5½-in. csg. 6,173 ft.; comp.; 25 B.P.H.; ½-in. ck.; C.P. 700 lbs.; T.D. 6,207 ft.
Lyons & Merritt No. 1 Matlock, SE cor Sec. 2-20-28. Sat. L. 6,166-90 ft.; 5½-in. csg. 6,169 ft.; comp.; 20 B.P.H.; ¾-in. ck.; C.P. 650 lbs.; T.D. 6,192 ft.

Mississippi County

Benedum & Trees Oil Co. No. 1 Mack, 330 ft. SW cor. NW SW Sec. 2-15n-12e. Top Nac. 2,160 ft.; set 7-in. csg. 2,897 ft.; drlg. gr. L. 4,232 ft.

Nevada County

Webb & Franks No. 1 P. T. Grayson, SW cor. NW SE Sec. 4-14-20. Tokio sd.; D.S.T. 2,098-2,102 ft.; 10 min.; rec. 200 ft. oil and mud; open ck.; set 7-in. csg. 2,099 ft.; T.D. 2,102 ft.; drld plug; 250 ft. F.I.H.; W.O.S.R.

Ouachita County

Phillips Pet. Co. No. 1 J. D. Reynolds, 330 ft. SE cor. SE NW Sec. 27-15-15. O.W.W.O.; O.T.D. 4,926 ft.; comp. as disc. well, Snow Hill field; drld. hd. dense ool. L. with salty taste to 4,945 ft. and pmpd. 1,200 bbls. S.W. daily, no S.O.; arng. P.B. and test Tokio sd. at approx. 2,750 ft.

Union County—Schuler

Lion Oil Ref. Co. No. 2 Henry, C N SE SE Sec. 12-18-18. Set 16-in. csg. 115 ft.; 10¾-in. csg. 1,920 ft.; drlg. rd.&gr. sh. 5,875 ft.
Lion Oil Ref. Co. No. 1 Murphy Ld. Co., Sec. 13-18-18. Drlg. 58 ft.
Roberts & Murphy No. 3 Leona, NW cor. Lot 6, SW Sec. 7-18-17. T. Jones sd. 7,511 ft.; cd. T. L. 7,675 ft.; set 7-in. csg. 7,750 ft.; T.D. 7,775 ft.; comp.; 294 B.P.D.; ¼-in. ck.; T.P. 1,200 lbs.; C.P. 1,375 lbs.; perf. 7,675-79 ft.

Union County—Other

Hollyfield & McFarlane No. 1 S. Murphy, Sec. 9-16-15. T. Mkns. sd. 2,336-49 ft.; set 9⅝-in. csg. 2,385 ft.; T.D. 2,392 ft.; W.O.C.
Mullins & Brooks et al No. 2 Nash, C NW SE Sec. 7-17-13. Tstd. mud and S.D. 3,151-70 ft.; cd. por. sat. sd. 3,070-89 ft.; comp.; 63 B.O. and 3 bbls. S.W. per day; T.D. 3,232 ft.
Sklar Oil Corp. No. 10 Murphy, SW NE Sec. 9-16-15. Sat. sd. 2,338-61 ft. (Meakin); set 7-in. csg. 2,385 ft.; arng. perf. 2,338-46 ft.
Sloan Wells, Tr., No. 4 G. J. Childs, 150 ft. NW cor. NE SW Sec. 8-16-16. O.W. W.O.; O.T.D. 2,656 ft.; fsg. 2,656 ft.
Snuggs Sebersky & Bylick No. 1 J. N. Jerry, NE cor. SE SW Sec. 21-17-14. Cd. S.W. sd. 2,818-21 ft.; S.D.; W.O.

NORTH MISSISSIPPI

Calhoun County

L. C. Lucas No. 1 E. C. Boland, 400 ft. E and 500 ft. S, NW cor. SW Sec. 9-22n-9e. S.D. 791 ft.

Clarke County

Jeremiah L. Ryan et al No. 1 M. Eddins, 500 ft. SE cor. Sec. 29-2n-14e. S.D. 291 ft.

Hinds County

G. Jefferys No. 1 Gaddis Farms, Inc., NW cor. SE Sec. 26-7n-4w. S.D. 3,448 ft.
Cleve Love et al No. 1 S. F. Johnson, NE cor. Sec. 29-6n-1w. S.D. 5,218 ft.; sd.; arng. D.D.; will erect large steel drk.

Madison Parish

Union Prod. Co. No. 1 Anderson, Sec. 12-8n-1w. Drlg. 359 ft.; set 13⅜-in. csg. 200 ft.

Simpson County

Cleve Love No. 1 N. E. Garner, SW cor SW NE Sec. 1-10n-17w. S.D. 900 ft.
Goodwill O. & G. Co. No. 1 Berry, Sec. 33-2n-4e. S.D. 2,810 ft.

Yalobusha County

Chas. W. Crader et al No. 1 John Bruce James, Sec. 24-11s-6w. S.D. 2,950 ft.

FLORIDA

Nassau County

St. Mary Oil Corp. No. 1 Hilliard, Sec. 19-4n-24e. Set 6⅝-in. csg. 3,935 ft.; fsg. D.S. 4,575 ft.

Lake County

Union O. & R. Co. No. 1 Gulf Expln., Sec. 17-24s-25e. S.D. 235 ft.

ALABAMA

Barbour County

H. A. Stebbinger et al No. 1 Mrs. Alyce Robertson, C NE NE Sec. 19-10n-25e. S.D. 4,950 ft.; set 7-in. csg. 4,500 ft.; will run 450 ft. 4¾-in. perf. lnr. to bttm. to test; reported 300 ft. asphaltic sd.&sh.

LOUISIANA

N. LOUISIANA WILDCATS

Bienville Parish

Ark. La. Gas Co. No. 2 Gayoso, 660 ft. SW cor. SE Sec. 14-16-10. T. Tr. Pk. 5,432 ft.; D.S.T. 5,796-5,805 ft.; tstd. dry in 26 min.; set 8⅝-in. csg. 6,300 ft.; T.D. 6,324 ft.; W.O.C.

Bossier Parish

Premier Inv. Co. No. 1 McDade, SE SW NE Sec. 28-19-11. T.D. 2,384 ft.; acd. with 1,000 gal.; csg. seat gave away; hole full S.W.; 5½-in. csg. 2,342 ft.; pmpg. 5 B.O.P.D. and 25 bbls. S.W.; hole clean; S.D. 2,472 ft.; high wtr.
Triangle Drlg. Co. No. 1 Sandridge, C SE SW Sec. 14-17-12. R.U.

Caddo Parish

R. E. Allison No. 1 Harman, SW cor. Sec. 34-18-14. R.U.
Rhoda Armstrong No. 2 Henderson, SW cor. Sec. 27-22-16. Set 5½-in. csg. 2,495 ft.; T.D. 2,507 ft.; flwg. by hds. est. 5 B.P.D., 20% S.W.
R. L. Bauman No. 1 Dorian, SE cor. NE Sec. 34-18-14. Por. L. 5,569-75 ft. and 5,581-88 ft.; set 5-in. csg. 5,596 ft.; T. D. 5,599 ft.; perf. 5,589-99 ft. and tstd. dry; reperf. 5,580-84 ft.; comp.; 135 B. P.D.; open tbg.; T.P. 300 lbs.; C.P. 850 lbs.; treated with 500 gal. acd. and made 15 to 20 B.P.H. on ½-in. ck.; T. P. 750 lbs.; C.P. 1,350 lbs.
Beckett & Key No. 1 M. C. Stallcup, SE cor. NE NW Sec. 34-22-16. Set 10-in. 103 ft.; drlg. new hole 2,127 ft.
Mose Browning and E. D. Holcomb, Jr., No. 1 Henderson, SW cor. Sec. 27-22-16. Oil sd. 2,495-2,504 ft.; 7-in. csg. 2,489 ft.; set 2 jts. 5½-in. perf. lnr. and 2-in. tbg. with pkr. at 2,467 ft.; swbg. S.W. and oil; recmtd. csg. 2,489 ft.
J. M. Buckler No. 2 Stiles, NE cor. Sec. 17-21-16. 6-in. csg. 1,048 ft.; T.D. 1,051 ft.
F. W. Burford No. 3 Brown, NE cor. Sec. 5-23-15. Drlg. 1,625 ft.
Burnham Drlg. Co. No. 1 Bell, SW cor. NW Sec. 34-22-16. Drlg. sh. 1,917 ft.
Carney et al No. 3 Hart, SE NW Sec. 21-21-16. Set 8-in. csg. 1,563 ft.; tstd. S.O.; acdzd. with 3,000 gal.; tstd. dry; drld. to 1,930 ft.; tstg.
Paul Cooper et al No. 2 Stiles, NE cor. SW Sec. 28-21-16. Drlg. 2,275 ft.
Cryer & Davis No. 1 Crystal fee, S and W, C Sec. 25-21-16. 10-in. csg. 70 ft.; oil sd. 2,274-76 ft.; T.D. 2,276 ft.; W.O. S.R.; 1,700 ft. O.I.H.; 6⅝-in. csg. 2,259 ft.
W. C. Feazel No. 1 Hunter, SW cor. Sec. 23-18-14. R.U.
Claude Ferguson No. 5 Lawhon, NW cor. Sec. 7-24-15. Set 7-in. csg. 1,374 ft. comp.; pmpg. 65 B.P.D., oil; T.D. 1,589 ft.
Harry Fotiades No. 1 Tomlinson, C NE NW Sec. 35-18-14. Set 10¾-in. csg. 1,500 ft.; drlg. sh.&anhy. 4,107 ft.
Don George No. 1 Henderson, SW cor. Sec. 27-22-16. R.U.; S.D.
H. C. Prod. Co. No. 1 Kinnebrew & Ratcliff, NE cor. Sec. 5-19-16. D.S.T. 2,253 ft.; S.W.; 7-in. csg. 1,497 ft.; P.B. 1,680 ft.; O.T.D. 2,253 ft.; acdzd. with 2,000 gal.; O.&S.W. in hole; S.D. 1,680 ft.; high wtr.
A. R. Hancock No. 4 Helpman, Sec. 16-21-16. Set 7-in. csg. 998 ft.; W.O.S.R. 1,017 ft.
A. R. Hancock No. 6 Helpman, NW SE Sec. 16-21-16. Set 6⅝-in. csg. 996 ft.; W.O.S.R. 1,018 ft.
Hurricane Pet. Corp. No. 1-C Chandler, C SW SE Sec. 34-18-14. Jnkd. at 1,256 ft.; skd. over and began second hole; drlg. sh.&L. 5,072 ft.
Hurricane Pet. Corp. No. 1 Harman, 660 ft. N and W, C Sec. 34-18-14. R.U.
Johnston, Flanigan & Williams No. 1 Henderson, SE SW Sec. 27-22-16. D.S. T. 2,495-2,504 ft.; tstd. S.W.; D.&A. 2,545 ft.
C. M. Jones No. 1 Henderson, SW cor. Sec. 27-22-16. Sdy. sh. 2,496-99 ft.; S. S.O.; S.D.; W.O.; T.D. 2,500 ft.
Wm. C. Leisk No. 1 Sinclair, NW SE Sec. 26-18-14. 13⅜-in. csg. 294 ft.; drlg. sh.&L. 5,488 ft.
Ben Levy No. 1 Crystal fee, SW cor. Sec. 25-21-16. Set 6-in. 1,350 ft.; tstd. dry 1,650 ft.; S.D. 2,150 ft.
C. D. Loe No. 1 Meyer, SE cor. Sec. 33-18-14. T. Pettit 5,592 ft.; O.T.D. 5,631 ft.; swbd. O.&S.W.; reagzd. all perf. and set plug 5,605 ft.; tstd. dry; reperf. 5,592-5,602 ft. and ripped csg. 5,592-5,602 ft.; swbg. twice daily; 3,000 ft. mud and O.I.H.
F. W. Martin Co. No. 1 Browning, NE cor. Sec. 33-22-16. Set 5½-in. csg. 2,462 ft.; tstd. S.W.; good S.O.; P.B. 2,469 ft.; comp.; pmpg. 75 B.O. and considerable S.W.
Oblinger & Ritter No. 1 Boisseau, SE cor. Sec. 34-21-16. R.U. and S.D.
S. H. Riggs and C. C. Gilger No. 1 W. D. Browning, NW cor. NE SW Sec. 27-22-16. R.U. and S.D.
J. O. Whittington No. 1 Grayson, C SE SE Sec. 30-19-15. Set 9⅝-in. csg. 2,200 ft.; T. Massive anhy. 4,434 ft.; base 4,695 ft.; T. Pett. L. 5,635 ft.; cd. 5,694-5,710 ft.; rec. 5 ft. ool. L.; odor gas; drlg. sh.&sd. 5,993 ft.
R. W. Williams No. 1 Burton, SE cor. SW Sec. 36-21-16. Drlg. 350 ft.

Caldwell Parish

G. W. Ziegen et al No. 15 La. Cen. Lbr. Co., NW cor. Sec. 32-15-2e. D.&A. 1,653 ft.

Claiborne Parish

E. T. Oakes et al No. 2 Kilgore, C NW SE Sec. 28-21-5. Hd. to slightly por. L. 5,294-5,303 ft.; 5½-in. csg. 5,287 ft.; acdzd. with 5,000 gal.; swbg.; 2,000 ft. O.I.H. 5,324 ft.

De Soto Parish

S. S. Alexander No. 1-A Stoll, Sec. 5-12-16. Set 7-in. csg. 2,705 ft.; acd. with 3,000 gal. and tstd. est. 2,000,000 cu.ft. gas; 400 lbs.; D.S.T. 2,984-3,046 ft.; tstg. 165 ft. mud cut with oil, 35 min.; set short string 5-in. csg. on bttm.; T.D. 3,145 ft.; perf. 3,000-44 ft.; 2,500 ft.; flwd. 3 days, est. 10 B.P.D. and went dead; reperf. csg. 2,995-3,045 ft. and tstg. 3,064 ft.; O.T.D. 3,145 ft.

Grant Parish

J. E. Granstaff No. 1 Erwin, NE cor. SE Sec. 9-9-1e. 10-in. csg. 80 ft.; T. sd. 1,526 ft.; set 7-in. 1,526 ft.; tstg. 1,532 ft.
K. M. Oil Co. No. 2 Holmes, NW cor. SE NW Sec. 20-9-1e. S.D.; W.O. 1,608 ft.

La Salle Parish

Placid Oil Co. No. 7 La. Central Lbr. Co., 270 ft. SL, 96 ft. WL, Sec. 13-10-4e. Set 10-in. csg. 90 ft.; T. Wlx. 1,875 ft.; D.&A. 2,412 ft.
Stovall Drlg. Co. No. 4-B Russell, NW cor. Sec. 25-10-1e. S.D. 1,054 ft.; high wtr.
G. C. Walsenham No. 2 Dean, NE cor. SE Sec. 23-9-1e. S.D.; W.O. 1,647 ft.

Natchitoches Parish

Jack Lent et al No. 1 Whatley, SW cor. Sec. 17-10-10. S.O.&G. reported at 1,490-1,516 ft.; T.D. 1,516 ft.; D.S.T. 1,470-56 ft.; tstd. dry in 20 min.; did not set csg.; D.S.T. 2,069-96 ft.; rec. 180 ft. mud and sl.; S.O. and 900 ft. S.W. in 15 min.; cd. sh. 3,462-72 ft.; D.S.T. 3,282-96 ft.; tstd. 100 ft. mud cut with 40-grv. oil; P.B. 3,300 ft.; will set csg.; O.T.D. 3,510 ft.

Red River Parish

H. B. Schumacher No. 1 Crichton, SW cor. NW Sec. 18-13-10. Set 8-in. csg. 1,065 ft.; tstd. S.S.O.; S.D. 1,450 ft.
D. J. Simmons et al No. 1 Richardson, NE cor. Sec. 24-13-11. Set 5½-in. csg. 2,500 ft.; tstd. S.S.O.; drlg. sh. 2,535 ft.

Sabine Parish

Geo. Ellis No. 1 Walker, 500 ft. NW cor. NW SE Sec. 8-4-12. Set 12½-in. csg. 276 ft.; W.O.C.
A. B. House No. 1 Sabine, NW NW Sec. 23-7-14. 8-in. csg. 2,134 ft.; used 7,000 gal. acd.; tstd. dry; cond. mud 3,642 ft.; arng. set 7-in. 3,500 ft.; T.D. 3,642 ft.
D. N. Jolley No. 1 Summers, C SW NE Sec. 14-7-13. Set 10-in. csg. 100 ft.; set 7-in. csg. 2,188 ft.
Major Oil Co. No. 1 Long Bell, SW cor. SW SE Sec. 1-7-13. 7-in. csg. 2,142 ft.; comp.; pmpg. 10 B.P.D.; T.D. 2,585 ft.
H. L. Nutting No. 1 Williams, SW cor. SW Sec. 13-7-11. Comp.; pmpg. 10 B.O. and 30 bbls. S.W.; T.D. 2,730 ft.; O.T.D. 3,130 ft.
Sutton Zwolle Oil Co. No. 2 Bowman Hicks, NW cor. SW NW Sec. 6-7-13. T. chk. rk. 2,069 ft.; set 6-in. csg. 2,070 ft.; T.D. 2,076 ft.
Voline Oil Co. No. 1 Sabine, NE cor. NW NW Sec. 23-7-14. Reported S.O. in sdy. L. 3,760-3,805 ft.; set 6⅝-in. csg. 3,760 ft.; T.D. 3,805 ft.; tstd. dry 3,805 ft.; S.W. broke in; believe csg. seat gave way; tstd. formation 3,805-3,976 ft.; dry; recmtd. 6⅝-in. csg. 3,760 ft.; W.O.C.; T.D. 3,976 ft.

Tensas Parish

H. V. Schumacher No. 4 Mound Plantation, Sec. 29-11-12e. S.D. 3,002 ft.

Webster Parish

R. L. Fisher et al No. 1 S. P. D. Coyle, 660 ft. N and 1,880 ft. E of SW cor. Sec. 23-21-10. Holly. sd. 5,544-59 ft. and 5,809-16 ft.; set 5½-in. csg. 5,782 ft.;

T.D. 5,998 ft.; tstd. S.G.; swbd. S.O.& G.; plg. tbg.; perf. csg. 5,543-59 ft.: acrng. test 5,998 ft.

Hunt Oil Co. No. 4 Bodcaw-Stewart, 2,155 ft. N and 660 ft. E. SW cor. Sec. 34-21-10. Holly, sd. 5,821-47 ft.; set 9⅝-in. csg. 5,802 ft.; tstd. S.O.&G. in Hollwy. sd.; drlg. sh.&sd. 8,337 ft.

Hunt Oil Co. No. 5 Bodcaw-Stewart, NW cor. NE Sec. 33-21-10. Hollwy. sd. 5,734-63 ft. and 5,885-95 ft., oil; set 9⅝-in. csg. 5,938 ft.; drlg. sh.&L. 6,983 ft.

Hunt Oil Co. and Stanolind O. & G. Co. No. 1 Coffee-Webster Inv. Co. Unit. C NE NW Sec. 36-31-10. 13⅜-in. csg. 677 ft.; no Holly. sd.; set 9⅝-in. csg. 5,780 ft.; T. "D" sd. 8,305 ft.; drlg. sdy. sh. 8,405 ft.; cg. Bdcw. sd. 8,447 ft.

Hunt Oil Co. No. 6 Webb, C NE SE Sec. 14-21-10. Set 13⅜-in. csg. 628 ft.; drlg. sh. 4,435 ft.

Hassie Hunt No. 11 Davis, C SE SW Sec. 13-21-10. Drlg. 707 ft.

Magnolia Pet. Co. No. 4 Branton, NE cor. Sec. 6-22-9. 9⅝-in. csg. 5,933 ft.: T. lower Marine 7,750 ft.; T. Bodcaw sd. 8,193 ft.; T. Davis 8,442 ft.; show some heavy oil at 8,450 ft.; set 7-in. csg. 9,137 ft.; T. Sexton sd. 9,155 ft.; cg. 9,179 ft.; set 2½-in. tbg. on pkr. 9,037 ft. and tstd. 56 bbls. dist. in 15 hrs.; ¾-in. ck.; ga. 832,000 cu. ft. gas: T.P. 300 lbs.; T.D. 9,203 ft.; recomp.; 78 B.P.D. dist. and 1,460,000 cu. ft. gas; ¾-in. ck.; T.P. 230 lbs.; C.P. 360 lbs.

Magnolia Pet. Co. No. 1 Cox, C NW SW Sec. 15-21-10. Set 13⅜-in. csg. 847 ft.; 9⅝-in. csg. 5,868 ft.; drlg. 7,549 ft.

Magnolia Pet. Co. and Ohio Oil Co. No. 1 Coyle-Hodges Unit, SW cor. NW Sec. 21-21-10. Set 9⅝-in. csg. 5,927 ft.; drlg. 6,857 ft.

Magnolia Pet. Co. No. 1 Roseberry Unit. 20 ft. N and W, C SE Sec. 29-23-9. Set 13⅜-in. csg. 887 ft.; T. Pettit L. 5,725 ft.; S.O. 5,764-66 ft.; T. Tr. Pk. 5,900 ft.; set 9⅝-in. csg. 5,962 ft.; T. lwr. Marine 7,850 ft.; T. Bdcw. sd. 8,289 ft., S.W.; T. Davis sd. 8,548 ft.; drlg. sh.&sd. 8,819 ft.

Midstates Oil Corp. No. 1 Giddens, 100 ft. NW cor. SW SW Sec. 30-21-9. Set 13-in. csg. 100 ft.; drlg. sh. 3,045 ft.

Ohio Oil Co. No. 1 Merritt, NE cor. Sec. 14-21-10. Set 13⅜-in. csg. 806 ft.; Holloway sd. 5,769-83 ft.; set 9⅝-in. csg 5,913 ft.; W.O.C.

Oliphant Oil Corp. No. 1-A Hodges, C NW NE Sec. 3-20-10. Top Tr. Pk. 5,995 ft.; no Holl. sd.; set 9⅝-in. csg. 5,610 ft.; T. lwr. Marine 8,090 ft.; "D" sd. 8,488-8,516 ft. (oil); T.D. 8,643 ft.; set 7-in. csg. 8,684 ft.; perf. 8,494-8,523 ft.; comp.; 897 B.P.D.; ¼-in. ck.; C.P. 1,650 lbs.; T.P. 1,475 lbs.; T.D. 3,690 ft.

Stanolind O. & G. Co. and W. Delaney No. 1 Pardee-Coffee Unit, C NE Sec. 36-21-10. T. Tr. Pk. 5,932 ft.; no Holloway sd.; set 9⅝-in. csg. 5,955 ft.; T. "D" sd. 8,499 ft.; T. Bdcw. sd. 8,594 ft.; S.O.; setting 7-in. csg. 8,627 ft.

Union Prod. Co. No. 1 Walker Unit. 50 ft. S, C SE Sec. 30-18-8. Set 9⅝-in. csg. 6,490 ft.; T. Pettit 6,665 ft.; T. Tr. Pk. 6,910 ft.; drlg. 7,873 ft.

SOUTH LOUISIANA FIELDS

Abbeville—Vermilion Parish

Continental Oil Co. No. 1 Franciol, Sec. 67-12s-3e. Drk.

Bancroft—Beauregard Parish

Republic Prod. Co. No. 6 Columbia Ld. & Tbr. Co., Sec. 15-6s-13w. Drlg. clay 60 ft.

Republic Prod. Co. No. 4 Lutcher Moore Lbr. Co., Sec. 16-6s-13w. Drk.

Republic Prod. Co. No. 5 Lutcher Moore Lbr. Co., Sec. 15-6s-13w. T.D. 7,394 ft.; 7-in. csg. 7,394 ft.; perf. csg. 7,343-48 ft.; I.P. 403 B.P.D.; ⅞-in. ck.

Republic Prod. Co. No. 1 Louis Whitman, Sec. 15-6s-13w. T.D. 7,344 ft.; P.B.; sdtrkd.; T.D. 7,371 ft.; 7-in. csg. 7,371 ft.

Bateman Lake—St. Mary Parish

Texas Co. No. 2 State-Bateman Lake, Sec. 21-16s-12e. 13⅜-in. csg. 1,700 ft.

Texas Co. No. 2 Wax Bayou Co., Sec. 21-16s-12e. Drlg. sh. 1,675 ft.

Baton Rouge—East Baton Rouge Parish

Guaranty Oil Co. No. 1 D. J. Morgan. R.U.

Geo. Helis et al No. 1 McInnis, Sec. 36-8s-1w. Loc.

Bay St. Elaine—Terrebonne Parish

Texas Co. No. 2 L.L.&E., Bay St. Elaine, Sec. 18-22s-18e. T.D. 6,500 ft.; 9⅝-in. csg. 6,020 ft.; csg. collapsed; sdtrkd.; drlg. sdy. sh. 6,046 ft.

Texas Co. No. 2-B State-Bay, Sec. 13-22s-17e. 9⅝-in. csg. 6,512 ft.; T.D. 6,682 ft.; sdy. sh.; O.S.; I.P. 487 B.P.D.; ⅛-in. ck.

Bayou Blue—Iberville Parish

Humble O. & R. Co. No. 11 Wilberts, Sec. 67-9s-11e. Loc.

Bayou Choctaw—West Baton Rouge

La. Crusader No. 5 Schwing, Sec. 29-8s-11e. 9⅝-in. csg. 2,250 ft.; T.D. 4,755 ft.; P.B. 4,200 ft.; sdtrkd. 4,214 ft.; T.D. 7,878 ft.; P.B. 7,530 ft.; stk. D.S.; P.B. 5,800 ft.; sdtrkd.; T.D. 5,890 ft.; P.B. 5,200 ft.; T.D. 8,648 ft.; stk. D.S.; cutting and pulling.

La. Crusader No. 6 Schwing, Sec. 29-8s-11e. T.D. 8,609 ft., run elec. survey.

Bayou des Allemands—St. Charles Parish

Amerada Pet. Corp. No. 3 St. Charles Ld. Co., Sec. 13-15s-20e. Cd. oil sd. 8,765-66 ft.; T.D. 8,832 ft.; run elec. sur.

Amerada Pet. Corp. No. 4 St. Charles Ld. Co., Sec. 13-15s-2e. Loc.

Caillou Island—Terrebonne Parish

Texas Co. No. 29 State, Sec. 17-23s-20e. Rig.

Texas Co. No. 54 State, Sec. 20-23s-20e. Cg. sd: 4,113 ft.

Cameron Meadows—Cameron

Burton-Sutton Oil Co. No. 26 Sch. Ld., Sec. 16-14s-13w. T.D. 2,465 ft.; 13⅜-in. csg. 2,465 ft.; T.D. 6,564 ft.; P.B. sdtrkd.; drlg. sh. 6,716 ft.

Chacahoula—La Fourche Parish

Sun Oil Co. No. 5 Dibert, Stark & Brown Cypress Co., Sec. 70-15s-15e. 16-in. csg. 110 ft.; 10¾-in. csg. 1,865 ft.; T.D. 6,055 ft.; stk. D.S.; P.B. and sdtrkd. at 3,718 ft.

Sun Oil Co. No. 4 Delbert Stark and Brown Cypress Co., Sec. 70-15s-15e. T.D. 7,794 ft.; P.B. 6,764 ft.; sdtrkd.; cg. hd. sd. 7,845 ft.

Chalkley Field—Cameron Parish

Humble O. & R. Co. No. 2 Cameron Par. Sch. Ld., Sec. 16-12s-6w. Drlg. sh. 2,536 ft.

Charenton—St. Mary Parish

Commerce Oil Co. No. 1 T. Brulation, Sec. 19-13s-10e. Loc.

Edwards & Aber No. 2 Blanchard, Sec. 21-13s-9e. T.D. 1,148 ft.; 5½-in. csg. 1,141 ft.; tstd. S.W.; P.B. 1,132 ft.; perf. csg. 1,125-32 ft.; W.O.S.R.

Kinsley Oil, Inc., No. 1-B Hertel, Sec. 30-13s-9e. Loc.

Pan American Prod. Co. No. 1 Achee, Sec. 21-13s-9e. Loc.

Pan American Prod. Co. No. 12 Laws Realty Co., Sec. 36-13s-9e. 8⅝-in. csg. 985 ft.

J. P. Scranton No. 1 State Bayou, Sec. 30-13s-10e. Drlg. sd.&sh. 4,585 ft.

Convent—St. James Parish

Continental Oil Co. No. 2 Realty Operators, Inc., Sec. 16, 13⅜-in. csg. 1,492 ft.; T.D. 7,889 ft.; P.B. 7,275 ft.; sdtrkd. 7,305 ft.; T.D. 8,235 ft.; well blew out; caught fire; rebldg. drk.; M.I.M. in rig.

Creole—Cameron Parish

Superior Oil Co. No. 5 State-Gulf of Mexico, Sec. 4-15s-8w. T.D. 4,253 ft.; P.B.; sdtrkd.; drlg. sh. 6,598 ft.

Darrow—Ascension Parish

Humble O. & R. Co. No. 15 Gumbel, Sec. 33-10s-2e. Loc.

Humble O. & R. Co. No. 2 Rose, Sec. 33-10s-2e. Top salt 6,359 ft.; T.D. 6,412 ft., salt; S.D.

Kiva Oil Co. No. 1 Duplessis, Sec. 69-10s-2w. S.D. 2,523 ft.

Dog Lake—Terrebonne Parish

Texas Co. No. 22 State, Sec. 5-22s-16e. 13⅜-in. csg. 2,030 ft.; 7-in. csg. 6,901 ft.; T.D. 7,014 ft.; salt; P.B. 6,950 ft.; perf. csg. 6,850-90 ft.; tstd. gas-cut mud; reperf. csg. 6,700-22 ft.; tstg.

Edgerly Field—Calcasieu Parish

R. H. Kean et al No. 1 M. J. Muller et al, Sec. 29-9s-11w. 7-in. csg. 2,804 ft.: bailed S.W.; S.D. 3,050 ft.; T.A.

Eola—Avoyelles Parish

J. E. Jones No. 1 Haas Inv. Co., Sec. 8-2s-3e. R.U.

O'Meara Bros. No. 1 W. F. Kelley, Sec. 7-2s-3e. R.U.

Pomo Prod. Co. No. 1 S. W. Sentel, Sec. 5-2s-3e. R.U.

Sid Richardson No. 2 Haas Inv. Co., Sec. 7-2s-3e. T.D. 1,428 ft.; 10¾-in. csg. 1,428 ft.; drlg. sh. 7,120 ft.; top Cock. 6,506 ft.; oil sd. 6,506-11 ft.; S.W. sd. 6,511-21 ft.

Sid Richardson No. 3 Haas Inv. Co., Sec. 7-2s-3e. Drlg. sh. 6,756 ft.

Fausse Point—Iberia Parish

Texas Co. No. 5 State Lake-Fausse Point, Sec. 35-11s-8e. Drlg. sh. 11,000 ft.

Garden Island—Plaquemines Parish

Texas Co. No. 31 State, Sec. 28-23s-33e. T.D. 6,915 ft.; 7-in. csg. 6,915 ft.; perf. csg. 6,595-6,615 ft.; flwd. oil on D.S.T.

Gillis—Calcasieu Parish

Fohs Oil Co. No. 1 Green Heres, Sec. 11-9s-8w. Cg. S.W. sd. 4,690 ft.

Union Sulphur Co. No. 8 Kaufman, Sec. 7-9s-8w. R.U.

Golden Meadows—La Fourche Parish

Martex Pet. Corp. No. 1 Falgout Holding Co., Inc., Sec. 9-19s-22e. Drlg. sh. 2,310 ft.

Grand Bay—Plaquemines Parish

Gulf Oil Corp. No. 25-A Erwin, Sec. 13-12s-10w. Drk.

Gulf Oil Corp. No. 4 Grand Prairie Lve. Dist., Sec. 48-20s-18e. Loc.

Gulf Oil Corp. No. 2 State, Sec. 6-20s-19e. Loc.

Hackberry—Cameron Parish

F. W. Bennett No. 1 Bickford, Sec. 37-12s-10w. T.D. 7,037 ft.; 7-in. csg. 7,037 ft.; drlg. plug.

Gulf Ref. Co. No. 25-A Erwin, Sec. 13-12s-10w. S.D. 3,684 ft., cap rk.

O'Meara Bros. No. 1 Mary E. Jones, Sec. 38-12s-10w. Loc.

Superior Oil Co. No. 2-C Kaough, Sec. 30-12s-10w. Drlg. sd.&sh. 5,570 ft.

Union Sulphur Co. No. 12 Doiron, Sec. 37-12s-10w. Drlg. sh.&L. 5,563 ft.

Union Sulphur Co. No. 13 Doiron, Sec. 37-12s-10w. Drlg. sdy. sh. 4,112 ft.

Union Sulphur Co. No. 1 Josephine O'Quinn, Sec. 37-12s-10w. Drlg. sd.& grvl. 521 ft.

Union Sulphur Co. No. 45 Watkins, Sec. 13-12s-10w. T.D. 3,203 ft.; P.B. 1,400 ft.; sdtrkd. 1,483 ft.; drlg. sh. 2,560 ft.

Horseshoe Bayou—St. Mary Parish

Texas Co. No. 2 State, Sec. 37-17s-9e. 9⅝-in. csg. 11,631 ft.; T.D. 12,770 ft.; set 1,659 ft. of 6⅝-in. csg. at 12,645 ft.; set 70 ft. of 6⅝-in. csg. 8,473 ft.; prep. to perf. csg. 11,782-11,847 ft.

Jefferson Island—Iberia Parish

Texas Co. No. 2 Jefferson Island, Sec. 58-12-5e. 18⅝-in. csg. 40 ft.; drlg. sh. 8,213 ft.

Texas Co. No. 2 State-Lake Peigneur, Twp. 12s-5w. Drlg. sh.&L. 3,328 ft.

Jennings—Acadia Parish

W. T. Burton No. 6 Roboria, Sec. 41-9s-2w. 7-in. csg. 6,721 ft.; fsg. tbg.; T.D. 6,997 ft.; sdtrkd. at 6,118 ft.; drld. to 6,178 ft.; sdtrkd. at 6,023 ft.; T.D. 6,732 ft.; trying to drill by fish; P.B. 6,104 ft.; W.O.C.; sdtrkd. 6,020 ft.; T.D. 6,058 ft.; 7-in. csg. 2,203 ft. and 10¾-in. csg. 2,108 ft.; sdtrkd.; drld into old hole; P.B.; sdtrkd. 2,302 ft.; T.D. 6,763 ft.; 7-in. csg. 6,711 ft.; tstg.

Glassell & Glassell No. 5 McFarlain, Sec. 41-9s-2w. Drlg. sh.&L. 6,885 ft.

Glassell & Glassell No. 6 McFarlain, Sec. 41-9s-2w. T.D. 7,527 ft.; run elec. sur.

Gulf Oil Corp. No. 41 Arnaudet, Sec. 47-9s-2w. Loc.

L. & L. Oil Co. No. 4 Houssiere Latreille, Sec. 47-9s-2w. 7-in. csg. 1,817 ft.; T.D. 1,881 ft.; P.B. 1,848 ft.; drld. out 1,848 ft.; flwg. by heads 10 to 24 bbls. daily; comp.

Shell Pet. Corp. No. 1 Prather. T.D. 7,392 ft.; W.O.C.

Stanolind O. & G. Co. No. 114 Crowley Oil & Mineral Co., Sec. 48-9s-2w. R.U.

Lafitte—Jefferson Parish

Texas Co. No. 2 State-Bayou Norman, Sec. 21-17s-24e. Loc.

Lirette—Terrebonne Parish

Humble O. & R. Co. No. 2 H. J. Ellender, Sec. 32-19s-19e. Drlg. sh. 10,152 ft.

Lake Long—La Fourche Parish

Fohs Oil Co. No. 7 State-Lake Long, Twp. 17s-19e. 18⅝-in. csg. 295 ft.; T. D. 10,248 ft.; 7-in. csg. 9,928 ft.; P.B. 9,875 ft.; perf. csg. 9,862-68 ft.; tstd. 780 lbs. press.; recvd. 270 ft. drlg. mud, cut with gas; perf. csg. 9,876-9,882 ft.; recvd. 30 ft. of gas-cut mud; sqzd. off perf.; perf. csg. 9,200-08 ft.; tstd. S.W.; perf. csg. 9,197-9,202 ft.; rec. 65 stands drlg. mud, S.W., trace of oil; 92 lbs. press.; sqzd. off perf.; perf. csg. 9,816-19 ft.; flwg. 22 bbls. P.L.O. per day; 20/64- and ¾-in. tbg. ck. on christmas tree; T.P. 900 lbs.; grvty. 49.

Lake Pelto—Terrebonne Parish

Texas Co. No. 23 State, Twp. 23s-18e. Drlg. cap rk. 5,675 ft.

Lockport—Cameron Parish

Continental Oil Co. No. 2 J. H. Moss, Sec. 8-10s-9w. Drk.

New Iberia—Iberia Parish

Wm. Helis No. 8 Bullock, Sec. 25-12s-7e. Drlg. sh. 4,335 ft.; no report.

Lisbon-Iberia Oil Corp. No. 7 Gulf fee, Sec. 25-12s-7e. S.D. 2,495 ft.

Texas Co. No. 2 Bryant, Sec. 25-12s-7e. R.U.

Texas Co. No. 6 Bryant, Sec. 25-12s-7e. Drk.

Texas Co. No. 1 DeCuir, Sec. 25-12s-7e. S.D. 4,551 ft.

Texas Co. No. 2 Gonsoulin, Sec. 13-12s-7e. Drlg. sh.&L. 8,127 ft.

Texas Co. No. 2-A Hanzon, Sec. 54-12s-7e. T.D. 8,101 ft.; heaving sh.

Texas Co. No. 3-B Hanszen, Sec. 54-12s-7e. 7-in. csg. 6,838 ft.; T.D. 7,133 ft.; salt; P.B. 7,073 ft.; perf. csg. 5,630-60 ft.; tstg.

Texas Co. No. 1 Renaudet et al, Sec. 71-12s-7e. Cg. 8,343 ft.

North Tepetate—Acadia Parish

Atlantic Ref. Co. No. 1 Aden & Doga, Sec. 11-7s-2w. 16-in. csg. 319 ft.

Atlantic Ref. Co. No. 4 Klumpp, Sec. 12-7s-2w. Drlg. sd.&sh. 7,243 ft.

Port Barre—St. Landry Parish

Pan American Prod. Co. No. 1 Rene Nezat. Drlg. sd.&L. 5,365 ft.

Y. D. Spill No. 1 Gaudet, Sec. 4-6s-5e. S.D. 4,700 ft.

Potash—Plaquemines Parish

Humble O. & R. Co. No. 38 Orleans Lve Dist., Sec. 13-18s-15e. Drlg. clay and sd. 230 ft.

Western Gulf Prod. Co. No. 1 Paseale, Sec. 6-18s-27e. Loc. abd.

Western Gulf Prod. Co. No. 1-A Treadway, Sec. 6-18s-27e. Loc. abd.

Quarantine Bay—Plaquemines Parish

Gulf Oil Corp. No. 1-A Plaquemines Ld. Co., Sec. 18-19s-17e. Drlg. sdy. sh.&L. 3,903 ft.

Gulf Ref. Co. No. 5 State, Sec. 17-19s-17e. Loc.

Gulf Oil Corp. No. 8 State, Sec. 18-19s-17e. Drlg. sd. 2,659 ft.

Gulf Oil Corp. No. 9 State QQ, Sec. 18-19s-17e. Loc.

South Houma—Terrebonne Parish

Shell Pet. Corp. No. 2 Peters. Cg. sh. 10,284 ft.

Raceland—La Fourche Parish

Amerada Pet. Corp. No. 1 Godchaux Sugars, Inc., Sec. 34-15s-19e. 18⅝-in. csg. 262 ft.; T.D. 11,312 ft.; 7-in. csg. 11,312 ft.; T.A.

Amerada Pet. Corp. et al No. 2 Godchaux, Sec. 34-15s-19e. T.D. 11,114 ft.: abd.

Tide Water Asso. Oil Co. No. 2-A South Coast Corp., Sec. 34-15s-19e. Loc. abd

South Roanoke—Jeff Davis Parish

Continental Oil Co. No. 2 Sturdivant, Sec. 36-10s-4w. Drlg. sh. 8,796 ft.

St. Martinsville—St. Martin Parish

Continental Oil Co. No. 1 Standard of Kans., Sec. 13-10s-6e. Cd. sd.&sh., oil odor 5,866-76 ft.; T.D. 8,247 ft.; abd.

Timbalier Bay—La Fourche Parish

Gulf Oil Corp. No. 4 State. T.D. 7,268 ft.; sdtrkd.; 5-in. csg. 5,320 ft.; T.D. 5,340 ft.; failed to flow; S.D.

Valentine—La Fourche Parish

Pan American Prod. Co. No. 19 Harang, Sec. 8-17s-20e. R.U.

John Vacarro et al No. 2 Acosta Hrs., Sec. 9-17s-20e. Drlg. sh. 2,046 ft.

Villa Platte—Evangeline Parish

Continental Oil Co. No. 1 Crise Deville, Sec. 26-3s-2e. Drlg. sh. 6,575 ft.

Continental Oil Co. No. 1 Fontenot-Deshotels, Sec. 44-3s-2e. T.D. 9,095 ft.; I.P. 259 B.P.D.; ⅛-in. ck.

Continental Oil Co. No. 3 Opelousas-St. Landry Securities Co., Sec. 44-3s-2e. R.U.

Continental Oil Co. No. 1 Rene McDaniel, Sec. 45-3s-2e. Drk.

Continental Oil Co. No. 1 Tate, Sec. 45-3s-2e. Drlg. sh. 8,340 ft.

Continental Oil Co. No. 2 Vidrine, Sec. 34-3s-2e. T.D. 9,135 ft.; S.W. sd.; P.B. 8,976 ft.

Continental Oil Co. No. 3 Vidrine, Deville, Sec. 46-3s-2e. Drlg. sh. 6,515 ft.

Texas Co. No. 3 Marman fee, Sec. 45-3s-2e. Loc.

Venice—Plaquemines Parish

Tide Water Asso. Oil Co. No. 4 Buras Levee Dist., Sec. 23-21s-20e. T. salt 3,120 ft.; S.D. 3,145 ft.

Woodlawn—Jeff Davis Parish

Union Sulphur Co. No. 4 Calcasieu Natl. Bnk., Sec. 12-9s-6w. Drlg. sh.&L. 3,393 ft.

Union Sulphur Co. No. 1 Dovaran-O'Connor, Sec. 12-9s-6w. R.U.

Union Sulphur Co. No. 2 Osmon, Sec. 7 9s-5w. T.D. 9,111 ft.; P.B. 5,910 ft.; sdtrkd.; drlg. sh.&L. 6,006 ft.

S. LOUISIANA WILDCATS

Acadia Parish

T. T. Tolson et al No. 1 J. Turner, Sec. 25-7s-1e. M.I.M.

Tri Parish Drillers, Inc., No. 1 Paul Stag, Sec. 4-7s-1w. Drk.

Assumption Parish

Humble O. & R. Co. No. 1 Milliken & Farewell Co., Inc., Sec. 79-14s-14e. 13⅜-in. csg. 2,978 ft.; drlg. sh. 11,313 ft.

Calcasieu Parish

David B. MacDaniel No. 2 Sch. Ld., Sec. 16-9s-7w. 15½-in. csg. 46 ft.; 10¾-in. csg. 1,299 ft.; T.D. 7,890 ft.; S.D.

Cameron Parish

Superior Oil Co. No. 2 John Sells, Sec. 4-15s-8w. Drlg. sd.&sh. 4,725 ft.

Superior Oil Co. et al No. 1 State, Grand Lake, Sec. 24-13s-4w. Driving piling.

Iberia Parish

Texas Co. No. 1 Petit Anse, Sec. 59-13s-6e. Drlg. sh. 8,405 ft.

Texas Co. No. 3-B State-Vermilion Bay, Twp. 16s-5e. Drlg. sh. 3,579 ft.

Texas Co. No. 2-B Vermilion Bay, Twp. 16s-5e. T.D. 9,667 ft.; cleaned hole with reversing tool to 6,381 ft.; twisted off D.S.; T.A.

Iberville Parish

California Co. No. 1 Schwing Lbr. Co., Sec. 96-10s-10e. 20-in. csg. 177 ft.; 9⅝-in. csg. T.D. 10,106 ft.; twisted off drill collar; P.B. to sdtrk. at 9,796 ft.

Humble O. & R. Co. No. 1 Iberville Mortgage Loan Co., Inc., Sec. 74-7s-10e. 20-in. csg. 208 ft.; W.O.C.

Shell Pet. Corp. No. 1 Natalbany Lbr. Co., Sec. 18-9s-2e. Drlg. sh. 6,837 ft.

Jeff Davis Parish

Union Sulphur Co. No. 1 H. B. Tietje. Sec. 36-7s-4w. Loc.

La Fourche Parish

Gulf Oil Corp. No. 1 Grandison Ld. Co., Sec. 14-20s-23e. Drk.

Texas Co. No. 1 L.L.&E. Golden Meadows, Sec. 77-19s-21e. Drlg. sdy. sh. 10,744 ft.

Texas Co. No. 1 State-Catfish Lake, Sec. 77-19s-21e. 18⅝-in. csg. 90 ft.; T.D. 8,205 ft.; D.S. stk.; P.B. 5,783 ft.; sdtrkd.; T.D. 10,224 ft.; run elec. survey.

Orleans Parish

W. T. Burton No. 1 L.&N.R.R., Sec. 18-11s-15e. Drlg. wtr. sd. 6,155 ft.

W. T. Burton No. 3 L.&N.R.R., Sec. 25-11s-14e. Loc.

W. T. Burton No. 1-B R. E. E. de Montluzin, Sec. 1-10s-13e. Drk.

W. T. Burton No. 1 State-Lake Pontchartrain, Twp. 10s-13e. T.D. 8,367 ft.; P.B. 7,775 ft.; sdtrkd. at 7,959 ft.; T.

D. 8,165 ft.; 9⅝-in. csg. 8,165 ft.; T.D. 8,241 ft.; tstd. S.W.; D.S.T. 8,135-8,241 ft.; T.D. 11,149 ft.; cutting and pulling stk. D.S.; P.B. 8,210 ft.; D.S.T. 8,153-8,210 ft.; tstd. S.W.; abd.

Plaquemines Parish

Texas Co. No. 1 L.L.&E., Bastian Bay, Sec. 43-20s-28e. 9⅝-in. csg. 9,540 ft.; drlg. sh. 9,706 ft.

Pointe Coupee Parish

Falcon-Seaboard No. 1 J. H. Hobgood, Sec. 8-1s-7e. Bldg. road.

Rapides Parish

Gulf States Expltn. No. 1 Erwin & Bishop, Sec. 35-1n-3w. Bldg. drk.

St. Bernard Parish

Gulf Ref. Co. No. 4-State-R.R. (Lake Borgne), Twp. 12s-15e. 9⅝-in. csg. 8,161 ft.; T.D. 10,632 ft.; P.B. 9,700 ft.; W.O.C.

Wm. Helis et al No. 1 Mereaux Munez, Sec. 34-12s-12e. T.D. 9,634 ft.; P.B.; sdtrkd. 9,370 ft.; T.D. 9,750 ft.; abd.

Vendome Pet. Corp. No. 1 Kenilworth Plantation, Sec. 59-13s-14e. 9⅝-in. csg. 10,809 ft.; cd. 10,880-10,900 ft., sdy. sh.; gas odor; cg. ahead.

St. Charles Parish

Texas Co. No. 1 L.L.&E. Paradis, Sec. 39-14s-20e. 9⅝-in. csg. 8,975 ft.; drlg. sh. 9,427 ft.

St. James Parish

Shell Pet. Corp. No. 1 Shexnayder, Sec. 38-12s-15e. 9⅝-in. csg. 8,534 ft.; cg. sdy. limy sh. 10,320 ft.

St. Martin Parish

Magnolia Pet. Co. No. 1 Mercelin, Sec. 8-10s-7e. Drlg. sh. 6,003 ft.

St. Mary Parish

Phillips Pet. Co. No. 1 Whitney Natl. Bnk., Sec. 13-15s-12e. Cg. sd.&sh. 8,840 ft.

St. Tammany Parish

A. P. Portas No. 1 W. C. Forbes, Sec. 33-7s-15e. Drk.

Terrebonne Parish

Texas Co. No. 2 State-Coon Point, Twp. 23s-14e. 13⅜-in. csg. 1,900 ft.; T.D. 2,851 ft.; driving piling; bldg. drk.

TEXAS

Week Ending March 4

GULF COAST FIELDS

Old Ocean—Brazoria County

Harrison & Abercrombie No. 3 Armstrong Plantation, Polley & Chance Sur. T.D. 10,538 ft.; tstg.

Harrison & Abercrombie No. 5 Armstrong, Polly & Chance Sur. Drlg. sd. &sh. 7,136 ft.

Harrison & Abercrombie No. 6 Bernard River Ld. & Dev. Co., C. Breen Sur. 9⅝-in. csg. 6,996 ft.; drlg. 7,039 ft.

Harrison & Abercrombie No. 1 Lola Buck, Polly & Chance Sur. T.D. 10,445 ft.; perf. csg. to test.

Sun Oil Co. No. 2 Campbell, Chas. Breen Sur. R.U.

Cedar Point—Chambers County

Standard Oil Co. of Texas et al No. 56-94 State. R.U.

Seabreeze—Chambers County

Sun Oil Co. No. 2 Barrow, A. Ybarbo Sur. T.D. 8,480 ft.; W.O.C.

Sun Oil Co. No. 1 Pipkin, W. M. Mays Sur. No. 104. T.D. 8,413 ft.; 7-in. csg. 8,407 ft.

Turtle Bay—Chambers County

Stanolind O. & G. Co. No. 1 Tassie Lotz, J. B. Jamison Sur. Loc.

West Columbia—Brazoria County

Frost & Dunman No. 1 E. C. Parker, G. Tennille Sur. Drlg. sh. 3,936 ft.

General Crude Oil Co. No. 1-B Campbell, S. M. Williams Sur. Drlg. sh. 2,730 ft.

Texas Co. No. 31 Abrams, G. Tennille Sur. Drlg. sh.&L. 5,136 ft.

Texas Co. No. 11 Phillips, G. Tennille Sur. T.D. 5,715 ft.; W.O.C.

Green's Lake—Galveston County

Sun Oil Co. No. 3 Houston Farms Dev. Co., D. Buckley Sur. Drlg. L. rk. 5,634 ft.

League City—Galveston County

Midstates Oil Co. No. 2-A Maco Stewart, Perry & Austin Sur. Cg. sh. 9,595 ft.

Phillips Pet. Co. No. 1 Brittnacher, S. F. Austin Sur. T.D. 9,217 ft., S.W. sd.

Phillips Pet Co. No. 1 J. C. Ott, S. F. Austin Sur. Cd. O.S. 7,070-9,110 ft.; T.D. 10,545 ft.; 5½-in. csg. on bttm.; perf. csg. 9,245-63 ft.; flwd. brksh. wtr some oil.

Phillips Pet. Co. No. 1 Dr. Patton, S. F. Austin Sur. T.D. 10,535 ft.; 5½-in. csg. 10,412 ft.; perf. csg. 10,156-80 ft. and 10,115-27 ft.; perf. csg. 9,292-9,312 ft.; tstd. S.W.; perf. csg. 9,180-83 ft.; flwd. 4 B.F.P.H.; ½-in. ck.; 10% oil, bal. S.W.

Phillips Pet. Co. No. 1 Stewart, Title Guaranty, S. F. Austin Sur. Top sd. 9,072 ft.; T.D. 9,274 ft.; P.B.; sdtrkd.; T.D. 9,333 ft.; cd. sh. 9,699 ft.

Salt Dome Oil Corp. No. 2 Ross-Stewart, Perry & Austin Sur. Drlg. sh. 2,705 ft.

West Prod. Co. No. 1 fee, Lot 2, Blk. 5, Perry & Austin Sur. Loc.

Bammel—Harris County

H. M. Harrell et al No. 2 John Ehrhardt, Geo. DeLesdenier Sur. Spd.

Clear Lake—Harris County

Humble O. & R. Co. No. 6-C Humble-West, Geo. B. McKinstry Sur. R.U.

Humble O. & R. Co. No. 3 Hutcheson, Wm. Doble Sur. T.D. 5,844 ft.; top sd. 5,682 ft.; tstg.

Clinton—Harris County

Stanolind O. & G. Co. No. 2 Edwards, Reels & Trobough Sur. Drk.

Eureka—Harris County

Jack Frazier No. 1 W. T. Helberg, H. Reinerman Sur. R.U.

Jack Frazier No. 1, Shady Acres subd., Henry Reinerman Sur. Drlg. sh.&shils. 7,020 ft.

Housh & Thompson No. 1 Helberg et al, H. Reinerman Sur. Top sd. 7,687 ft.; 5½-in. csg. 7,718 ft.; perf. csg. 7,687-97 ft.; gas-oil ratio high; killed; reperf. csg. 7,691-96 ft.; tstd. oil, gas, and S.W.; reperf. csg.; flwd. gas and oil.

Houston Oil Co. No. 3 Helberg & Lackner, J. Reinerman Sur. Loc.

Houston Oil Co. No. 2 D. Lackner, H. Reinerman Sur.-R.U.

Tide Water Asso. Oil Co. No. 2 Roy J. Reinerman Sur. Drlg. 239 ft.

Fairbanks—Harris County

Amerada-Stanolind O. & G. Co. No. 1 Post, G. Williams Sur. T.D. 6,844 ft.; perf. csg. 6,828-41 ft.; flwd. oil and S.W.

Kirby Pet. Co. No. 1 Daniels, S. S. Reynolds Sur. Cd. oil sd. 7,227-48½ ft.; T.D. 7,252 ft.; perf. csg. 7,237-39 ft.; flwd. gas and S.W.; sqzd. perf.

Stanolind O. & G. Co. No. 1 W. F. Jahnke, 148-ac. tr., Sam Lewis Sur. Spd.

Union Prod. Co. No. 1 Murphy, T. M. Dorsett Sur. Drlg. sh.&L. 6,178 ft.

H. E. Williams et al No. 1 Behne, W.C. R.R. Sur. T.D. 6,864 ft.; W.O.C.; rec. 21 stands of P.L.O.; 9 min.; D.S.T. 6,853-62 ft.

Friendswood—Harris County

Humble O. & R. Co. No. 1 G. M. Anderson, T. Choate Sur. T.S. 5,897 ft.; T. D. 6,040 ft.; tstg.

Humble O. & R. Co. No. 10-B Godwin, W. K. Smith Sur. T.D. 6,044 ft.; tstg.

Humble O. & R. Co. No. 14-B Humble-West, Luke Hemenway Sur. T.D. 6,039 ft.; tstg.

Humble O. & R. Co. No. 17-B Humble-West, Luke Hemenway Sur. Drlg. sh. 3,936 ft.

Cheek—Jefferson County

Geo. H. Echols No. 1 Beaumont Launch Club, C. Hildebrandt Sur. Drlg. sh. 6,430 ft.

Humble O. & R. Co. No. 3 Jefferson Ld. Co., C. Hillebrandt Sur. Drlg. sh. 3,035 ft.

Humble O. & R. Co. No. 1 Pitre, C. Hillebrandt Sur. Drlg. sd. 6,430 ft.

La Belle—Jefferson County

Sun Oil Co. No. 5 Broussard-Hebert, T. &N.O. Sur. No. 207. Bldg. drk.

Cordele—Jackson County

H. J. Porter No. 1 Woussi, Peter White Sur. Loc.

Esperson—Liberty County

General Crude Oil Co. No. 1 Burgess et al, A. McNeil Sur. Drlg. sh. 4,733 ft.

Hardin—Liberty County

Atlantic Ref. Co. No. 1 Humphrey, F. Hardin Sur. Drlg. sh. 2,145 ft.

Gulf Oil Corp. No. 4 Cessna, H. B. Johnston Sur. R.U.

Gulf Oil Corp. No. 4 Tullos, H. B. Johnson Sur. T.D. 7,626 ft.; 5½-in. csg. 7,613 ft.

Texas Co. No. 2 Smith, A. A. Hardin Sur. R.U.

Orange—Orange County

Continental Oil Co. No. 18 Chesson, Wm. Dyson Sur. T.D. 5,512 ft.; reperf. csg. 5,491-95 ft.; blew out.

Gulf Oil Corp. No. 2 Lafleur, Wm. Dyson Sur. T.D. 5,757 ft.; 5½-in. csg. 5,712 ft.

Gulf Oil Corp. No. 10-A Winfree, Wm. Dyson Sur. Loc.

John Mayo No. 1 M. J. Williams, Dyson Sur. Drk.

Red Bank Oil Co. et al No. 1 Allie Chesson, Wm. Dyson Sur. Drlg. sd.&sh. 4,839 ft.

Ryan et al No. 4 Chesson, Wm. Dyson Sur. T.D. 5,968 ft.; 5½-in. csg. 5,939 ft.

Union Prod. Co. No. 5 Lutcher Moore, J. Dyson Sur. T.D. 1,340 ft.; fsg.

Port Neches—Orange County

Texas Co. No. 13 Kuhn, M. E. Hall Sur. T.D. 5,975 ft.; prep. to run csg.

Ace—Polk County

Dick Schwab No. 1-C Kirby-West Lbr. Co., G. A. Thomas Sur. Loc.

Shell Pet. Corp. No. 1 Doucett, P. A. Sublett Sur. Cg. sd.&sh. 7,710 ft.

Shell Pet. Corp. No. 2 Doucett, P. A. Sublett Sur. Loc.

Segno—Polk County

Gulf Oil Corp. No. 4 Quinn, A. Morales Sur. R.U.

Gulf Oil Corp. No. 6-B Quinn, A. Morales Lge. T.D. 5,202 ft.; W.O.C.

Gulf Oil Corp. No. 1 Ragan, I.&G.N. Sur. No. 15. R.U.

Gulf Oil Corp. No. 5 Ragan, I.&G.N. Sur. No. 15. Loc.

Gulf Oil Corp. No. 6 Ragan, I.&G.N. Sur. No. 15. T.D. 8,070 ft.; W.O.C.

Humble O. & R. Co. No. 11-BX Kirby, M. Victor Sur. Spd.

Spurger—Tyler County

Republic Prod. Co. No. 18 fee, N. Hurd Sur. Drlg. sh. 836 ft.

Katy—Waller County

Stanolind O. & G. Co. No. 1 McCarthy, Williamson, H.&T.C. Sur. Drlg. sh.&L. 5,036 ft.

GULF COAST WILDCATS

Brazoria County

Crosby Drlg. Co. No. 1 Geo. S. Wilson, A. C. Reynolds Sur. 10¾-in. csg. 2,925 ft.

Fabriguze et al No. 1 Freeport Sulphur, Stephen F. Austin Sur. (Bryan Mound). M.I.M.

Hamman Expltn. Co. No. 1 Darrington, Achilles McFarland Sur. Loc.

Housh & Thompson No. 1 Lula Allen, Kate Ehrmann Sur. Loc.

Humble O. & R. Co. No. 1 Walker, S. Marsh Sur. 13⅜-in. csg. 2,419 ft.; cg. hd. sd. 9,875 ft.

Chambers County

Geo. Anderson No. 1 Julia Casey, W. D. Smith Sur. Loc.

L. D. Roberts No. 1 C. H. Lang, T.&N. O. Sur. No. 35. Drk.; (cor.).

Colorado County

Mills Bennett Prod. Co. No. 1 J. M. Truchard, Ed Curbit Sur. 13⅜-in. csg. 968 ft.; S.D. 7,505 ft.; wsg. to bttm. to core ahead.

Galveston County

Sun Oil Co. No. 2 Cade, A. Dickson Sur. T.D. 8,009 ft.; 9⅝-in. csg. 8,009 ft.; prep. to test.

Harris County

H. C. Cockburn No. 1 Lena Griffith, Adam Sur. Loc.

Cron & Gracey No. 1 McDonald, Andrew Lawson Sur. Abd. 6,115 ft.

H. H. Givens No. 2 F. K. Adone, David Middleton Sur. Drk.

Jefferson County

I. E. Harwell No. 1 State, Gulf of Mexico. T.D. 5,840 ft.; D.S. stk.; pulled in two; S.D.

Humble O. & R. Co. No. 13-B McFaddin-State, Sec. 8. 10¾-in. csg. 2,758 ft.; T.D. 5,859 ft.; D.S. stk.; backed off at 3,688 ft.; P.B. 4,220 ft.; sdtrkd.; T.D. 6,014 ft.; sdtrkd.; T.D. 6,115 ft.; P.B.; sdtrkd.; 7-in. csg. 5,919 ft.; T.D. 5,940 ft.

Navarro Oil Co. et al No. 1 T. F. Koch, Flutero Lopez Sur. Spd.

Matagorda County

Maja Oil Co. No. 1 Robbins, A. Sheppard Sur. R.U.

Sun Oil Co. No. 1 Cavallin, Theo. F. Koch subd., John Duncan Sur. 9⅝-in. csg. 8,502 ft.; T. gas sd. 9,313 ft.; drlg. sh. 9,458 ft.

Montgomery County

Deep South Pet. Co. No. 1-A Foster Lbr. Co., Pryor Bryan Sur. Loc.

O. C. Garvey et al No. 1 Foster Lbr. Co., Neil Martin Sur. M.I.M.

H. A. Pennington et al No. 1 F. L. Banker, L. M. H. Washington Sur. S.D. 1,033 ft.

J. Smith et al No. 1 J. V. Scott, F. A. B. Wheeler Sur. S.D. 3,623 ft.

Newton County

Sun Oil Co. No. 1 Peavy-Moore Lbr. Co., T.&N.O.R.R. Sur. Drlg. 355 ft.

Orange County

Sun Oil Co. No. 1 Lutcher-Moore Lbr. Co., B. Johnson Sur. T.D. 7,867 ft.; P.B.; sdtrkd.; 7-in. csg. 9,402 ft.; T.D. 9,705 ft.; D.S. stk.; P.B. 8,384 ft.; sdtrkd.; T.D. 9,664 ft.; P.B. 8,900 ft.; drld. to 9,020 ft.; perf. csg. 8,995-9,010 ft.; tstg.; flwg. est. 100 B.F.P.D., 22 to 85% S.W. and 15 to 78% oil, varying at various times; well went dead swbg. 98% S.W., 2% oil; P.B. 6,453 ft.; perf. csg. 6,320-30 ft.; tstd. S.W.; pulling tbg.; abd.

San Jacinto County

J. W. Frazier No. 1 Annie Smith, J. D. Martinez Sur. No. 10. M.I.M.

Carl Keels et al No. 1 Ed Mays, Lot 7, R. O. Lusk Sur. Loc.

Washington County

Mount Selman Oil Co. No. 1 Fritz Fuelberg, John Lightfoot Sur. R.U.

Wharton County

Helmerich & Payne No. 1 J. L. Myatt, E.T.R.R. Sur. Drlg. sh. 5,665 ft.

S. W. TEXAS WILDCATS

Bastrop County

H. H. Coffield and H. R. Edwards No. 1 McAden, Jose Antonio Navarro Sur. T.D. 2,170 ft.; abd.

Bee County

Rodney DeLange et al No. 1 B. F. Boss, Sam May Sur. Cg. 3,407 ft.

Bell County

M. M. Gordon No. 1 Steele, Oliver T. Tyler Sur. S.D. 1,201 ft.

G. P. Shelton et al No. 1 Nelson, Michael Griffin Sur. S.D. 1,208 ft.

Bexar County

Fred Beatty No. 1 Joppich, Iginio Tejado Sur. No. 186. 6⅝-in. csg. 575 ft.; drlg. sh. 640 ft.

H. G. Krumm No. 1 Kempf, Samuel McCollough, Jr., Sur. 54. T.D. 770 ft.; tstd. small amt. of oil; reworking well. tstg. on pmp.

L. L. Skaggs No. 1 Braubach, Fernando Rodriquez Sur. S.D. 325 ft.

Joe Wagner et al No. 1 Florence Lamm, Manuel De Luna Sur. T.D. 1,002 ft.; abd.

Blanco County

E. L. Nixon No. 2 Crist, John McClenechen Sur. No. 94. S.D. 285 ft.

Brooks County

Humble O. & R. Co. No. 5 McGill Bros., La Blanca gr. Cg. sd. 4,810 ft.

Comal County

O. W. Killam No. 1 Gruene, Henry Foster Sur. T.D. 1,742 ft., L.; S.D.

De Witt County

Richardson et al No. 1 W. D. McCurdy, John Hunt Sur. T.D. 150 ft.

Duval County

Dan Auld et al No. 1 Pope Dimitt, Jose Marcelo Ynojosa gr. 10-in. csg. 561 ft.

C. G. Glasscock No. 1 Nicholas Garcia, Santa Cruz De Concepcion gr. S.D. 4,039 ft.

Gravis and Doran No. 1 Parr, San An- T.D. 6,272 ft.; P.B. to recore sd. 5,868-74 ft.

Frank Gravis No. 3 Schallert, Seale, Morris & Seale Sur. No. 2550. T.D. 3,168 ft.; P.B. 1,800 ft.; prep. to sdtrk.

Hamill & Smith No. 1 Perez, Cordente Hrs. T.D. 3,114 ft.; abd.

Hamill & Smith No. 1 A. Weil, B.S.&F. Sur., Sec. 567. Drlg. sh. 2,810 ft.; D.S. T. 2,733-51 ft.; tstd. S.W.

Lanning & Coffield et al No. 1 W. T. Peters, C.C.S.D. Co. Sur. No. 66. Drlg. sh. 1,267 ft.

Magnolia Pet. Co. No. 1 Denman, Santos Garcia gr. R.U.

W. A. Wagner No. 1 D. J. Weikel, John H. Gibson Sur. No. 497. R.U. and S.D.

Goliad County

Eltobilt Oil Co. No. 1 Pettus, Maria De Jesus Yvarvo Sur. Drlg. sh. 4,020 ft.

Martex Oil Co. No. 1 Wm. F. Albrecht, Thos. Hancock Sur. Drlg. sh. 4,820 ft.

Gonzales County

Otton Elder No. 1 Wilkinson, Russell Ward Sur. S.D. 425 ft.

Hochheim Dev. Trust No. 1 Dubose, E. G. Coffman Sur. 10-in. csg. 37 ft.; S.D. 2,509 ft.

Guadalupe County

John Hueners No. 1 Boecker, John Baker Sur. No. 26. Drlg. 878 ft.

White & Landrum No. 1 Walker Est., B. White Sur. Abd.

McGREGOR

85,000 Working Barrels in Use

OUR working barrels have been continually improved for 30 years. We have worked with producers in developing many special features for pumping.

We will be glad to try to help you out of your difficulties.

McGREGOR WORKING BARREL COMPANY

Bradford, Pa., U.S.A.

Hidalgo County

Pan American Prod. Co. No. 1 J. De la Vina Vicente Hinojosa gr. T.D. 8,125 ft.; P.B. 6,391 ft.; D.S.T. 7,985-8,023 ft.; tstd. S.W.; drld. plug; found cmt. soft; P.B. 6,050 ft.; prep. to sdtrk.

Jim Hogg County

A. W. Dillard No. 1 Julian Ramirez, John S. Williams Sur. Drlg. sh. 1,229 ft.
Humble O. & R. Co. No. 8 Bass, San Raphel gr. S.D. 4,733 ft.
Humble O. & R. Co. No. 1 Mestena O. & G. Co., Fowler & Rankin subd., Pallitos Blanco gr., R. G. Sars Sur. 16-in. csg. 70 ft.; T.D. 2,007 ft.; 10¾-in. csg. 1,563 ft.; T.D. 5,001 ft.; make D.S.T.
Johnson & Robinson No. 1 Palacios, Mary Montgomery Sur. S.D. 2,465 ft.

Jim Wells County

F. A. Gillespie & Sons No. 1 Shear, Blk. 24, Adam-Beatty & Moulton Sur. 10¾-in. csg. 999 ft.
H. H. Howell et al No. 1 W. T. Wright, Ross M. Bridges Sur. T.D. 6,800 ft.; well tried to blowout at 6,500 ft.; 5½-in. csg. 6,790 ft.; perf. csg. 6,644-49 ft.; tstd. S.W.; S.S.O.; T.P. 600 lbs.; C.P. 900 lbs.; killed well; repe-- csg 6,644-48 ft.; no results; S.D.
Tom Graham No. 1 N. O. Adams, Marcellino Lopez gr. Cg. sh. 4,966 ft.
Magnolia Pet. Co. No. 1 Samuel Maun, Los Olmos y Loma Blanca gr. 7-in. csg. 6,314 ft.; T.D. 7,560 ft.; run elec. survey; cmtd. 5-in. lnr. at 7,257 ft.
W. H. Mathews No. 1 Frances Clark, Los Precenos gr. 10¾-in. csg. 617 ft.; tstd. 450 lbs. press.; 1 qt. oil on D.S. T. 5,141-58 ft.; 5½-in. csg. 5,309 ft.; T.D. 5,319 ft. (cor.); perf. csg. 5,202-12 ft.; tstd. S.W.; perf. csg. 5,138-42 ft.; flwd. 5 bbls. dist. per day; 9/64-in. ck.; killed well; reperf. csg. 4,825-35 ft.; flwd. est. 25 B.F.P.D., 99% S.W.; T.P. 140 lbs.; C.P. 720 lbs.; S.I.
Parr Drlg. Co. et al No. 1 W. G. Carter, LaVaca gr. R.U.

Kenedy County

Humble O. & R. Co. No. 1 Kenedy rnh., Penaseal gr. Drlg. sh. 2,010 ft.

Kleberg County

Pure Oil Co. No. 1 State. Tr. No. 155. Drlg. sh. 7,298 ft.

Lavaca County

H. L. Edwards et al No. 1 Frank Rather, M. Wooten Sur. R.U.

Lee County

Fred Pederson et al No. 1 Brown, David Hudson Sur. T.D. 6,404 ft.; acd.; R.U. pmpd. 100 bbls. fluid; 36 hrs.; 3 bbls. oily emulsion, bal. S.W.; dpnd. to T.D. 6,424 ft. fluid standing: 5,000 ft. S.W. and oil; P.O.P.; pmpg. at rate of 2 B. O. and 50 bbls. S.W. per day.

Live Oak County

Bruce Albright No. 1 Texas Joint Stock Ld. Bnk., J. Poitevent Sur. No. 197. Drlg. sh. 465 ft.; no report.
Harry Hotchkin No. 1 Wade, J. Sommers Sur. No. 147. Drlg. sh. 1,673 ft.
L. W. Stieren No. 3 Lange, Thos. Adams Sur. T.D. 1,497 ft.

McMullen County

Holbrook and O'Farrell No. 1 Miles, J. Poitevent Sur. S.D. 1,003 ft.; tstg. sd. 968-75 ft.
Merle Morton No. 1 Valadez, Antonio De La Rosa, Porc 85. Loc.
Mid-Western Pet. Corp. No. 1 C. E. Byrne, Geo. Pittuck Sur. R.U.
C. D. Scarborough and Biglane No. 1 Paul Foyt, James Garner Sur. No. 6. Drlg. sh. 507 ft.
Shumway & Burns No. 3 Shiner, Sec. 21 of Shiner rnh. Cg. 1,215 ft.
R. M. Strum and Womack No. 1 Smith and Leischner, A. Zumwalt Sur. S.D. 949 ft.

Medina County

John Clopton et al No. 1 T. A. Wilson, Wm. P. Scott Sur. S.D. 2,005 ft.
J. I. and J. W. Cromwell No. 1 Tschirhart, I. J. Rogers Sur. No. 18. Drlg. 507 ft.
Gilcrease Oil Co. No. 1 W. S. Lilley, Abl Clark Sur. Drlg. L. 2,408 ft.
Victor Ziegler No. 1 Paul Haby, Wm. G. Still Sur. No. 1. Drlg. 904 ft.

Milam County

Alex Krause No. 1 Graves, Jackson Hall Sur. S.D. 900 ft.

Nueces County

H. D. & H. Oil Co. No. 1 Wright, V. L. De Herrera gr. S.D. 5,515 ft.
Heep Oil Corp. et al No. 1 G. W. Smith, Jose Vicente Lopez de Herrera gr. 10¾-in. csg. 1,090 ft.; T.D. 5,050 ft.; 7-in. csg. 5,049 ft.; perf. csg. 5,043-47 ft.; swbd.; no show; drlg. sh. 5,964 ft.
Henshaw Bros. No. 1 Countiss, V. L. De Herrera gr. T.D. 5,525 ft.; abd.
O. W. Killam No. 1 J. O. Chapman, E. L. Rincon de Corpus Christi gr. T.D. 7,012 ft.; abd.
Seaboard Oil Co. No. 8 Chapman, Laureles Farm Trs. (1 mi. S of Chapman field). Cg. 5,637 ft.
Seaboard Oil Co. No. 2 Wilson, Jose Vincente Lopez de Herrera Sur., Blk. 9, 13¾-in. csg. 1,551 ft.; T.D. 5,037 ft.; 9⅝-in. csg. on bttm.; perf. csg. 4,994-97½ ft.; flwg. gas and wash wtr.; kld.; reperf. csg. 4,995-98 ft.; flwd. 50 bbls. P.L.O., 4 hrs.; ¼-in. ck.; killed; reperf. csg. 4,996-99½ ft.; flowed 112 bbls. per day; 7/64-in. tbg. ck. and 6/64-in. csg. ck.
Shell Pet. Corp. No. 1 Griffith, Vicente Lopez de Herrera gr. Drlg. sh. 4,620 ft.

Real County

Blakely Smith et al No. 1 Love Ranch, H.E.&W.T.R.R. Co. Sur. S.D. 310 ft.; abd.

Refugio County

Hewitt & Dougherty No. 1-B Rooke, Aldrete 6½ Lge. Cg. 5,739 ft.

San Patricio County

Copano Oil Co. No. 2-C O'Connor, Timothy Hoyt Sur. (Mellon Creek field). Cg. 5,870 ft.
Copano Oil Co. No. 3-C O'Connor, Timothy Hoyt Sur. (Mellon Creek field). Drlg. sh. 5,220 ft.
Coronado Corp. No. 5 Michna, Aldrete 6¾ Lge. (La Rosa field). T.D. 6,356 ft.; tstg.
Coronado Corp. No. 9 Rooke, Aldrete 6¾ Lge. 5½-in. csg. 6,352 ft.; tstg.
Coronado Corp. No. 12 Rooke, Aldrete 6¾ Lge. T.D. 5,916 ft.; tstg.
Culton et al No. 1 McCampbell, Peter Mahoney Sur. Cg. 6,784 ft.
Morgan, Gulf Oil Corp. No. 1 B. D. Rooke, Aldrete 6¾ Lge. (La Rosa field. T.D. 5,714 ft.; W.O.C.; rec. 1,000 ft. P.L.O.; D.S.T. 5,709-14 ft.
Plymouth Oil Co. No. 1 Wilson, John Brown Sur. Drlg. sh. 5,293 ft.

Starr County

Banks Miller Oil Co. No. 2 Garcia, Juan Salinas Porc. No. 71. Drlg. sh. 670 ft.
Magnolia Pet. Co. No. 1 M. M. Garcia, S. Vela Porc. No. 90. T.D. 1,083 ft.; W.O.C.
Rhinehart and Bowman No. 1 Bowman-J. C. McCarty Sur. M.I.M.
Rowan-Hope and Transwestern Oil Co. No. 1 W. I. Cameron, Geo. W. Smith Sur. R.U.
Sun Oil Co. No. 4 McKinney, A. J. Smith Sur. No. 240. T.D. 5,382 ft.; perf. csg. 4,610-23 ft.; tstd. dist.; S.I.
Sun Oil Co. No. 1 Olivarez, C.C.S.D.&R. G.N.G. Sur. Drlg. sh. 5,590 ft.
W. W. Zimmerman No. 1 M. S. Tijerina, H.E.&W.T.R.R. Sur. No. 299. Cg. sh. 1,363 ft.

Travis County

Oscar Raesz et al No. 1 J. W. Swahn, Phillips McElroy Sur. No. 16. Drlg. sh. 265 ft.; no report.

Webb County

Brazos Young Corp. No. 1 A. M. Bruni, J. Borego gr. R.U.
Gilcrease Oil Co. No. 1 W. E. Trafton, J. Poitevent Sur. No. 281. Drlg. 212 ft.
J. M. Hardie No. 1 J. M. Garcia, Blk. 27 of Hughes Pet. Co. Mineral subd., Los Ojuelos. Loc.
A. E. Heniger No. 1 M. Guerra, Juan P. Yzaguirre Porc. No. 56. Drlg. 20 ft.
Smith & Storey No. 1 Houston Oil Co., R. O. Barnsley Sur. No. 24. R.U.

Willacy County

Cockburn et al No. 1 Yturria Ld. Livestock Co., San Juan de Carricitos gr. T.D. 1,275 ft.; 10¾-in. csg. 1,228 ft.

Williams County

Fritz Fuchs No. 1 Schmidt, J. West Sur. T.A. 1,400 ft.; chk. top A.C. 1,350 ft.; T.D. 1,400 ft.; abd.

EAST TEXAS

(Border Counties)

Harrison County

Ark.-La. Gas Co. No. 1 Jim Davis, James Adams Sur. R.U.

Marion County—Rodessa

Ark.-La. Gas Co. No. 2 Belcher, A. D. S. Coy Sur. Set 5½-in. csg. 6,095 ft.; T. D. 6,123 ft.
Cable Tool Drlg. Co. No. 1 Jackson, John Hanks Sur. Drlg. 921 ft.
Gulf Oil Corp. No. 1 C. Ray, John Hanks Sur., NW cor. lse. 9⅝-in. csg. 1,910 ft.; drlg. sh. 3,565 ft.
Harry Hanbury et al No. 2 Davis, Wm. R. Meyers Sur. Drlg. anhy.&sh. 5,460 ft.

Marion County—Other

Tom Bell No. 1 Moseley, D. Lane Sur. Fsg. for core bbl.
Exploroil Co., Inc., No. 1 Susie Chatten, I. N. Jones Sur. Nac. sd. 1,186-94 ft.; drlg. 1,673 ft.
Van Horn & Clements No. 1 Berk, G. Coore Sur. S.D. 1,172 ft.

Shelby County

Neal & McDaniel No. 1 C. W. McDaniel, Wm. Snider Sur. Set surf. csg.; W.O.C.

WEST TEXAS WILDCATS

Andrews County

Atlantic and Standard No. 1-B Cowden, Sec. 1, Blk. 14, T.&P. Sur. P.B. 4,180 ft.; W.O.C.
J. W. Tripplehorn No. 1 M. A. Thornberry, Sec. 2, Blk. 42-A. Pmpg. 8 B.O. P.D., 4,480 ft.

Borden County

Continental Oil No. 1 L. S. Monger, Sec. 38, Blk. 31, T.&P. Sur.; 4,000-ft. test. Drlg. 1,597 ft.

Brewster County

H. D. Wilcox No. 2 Kokernot, Sec. 23, Blk. C, J. V. Massey Sur. Drlg. 145 ft.

Cochran County

T. G. Shaw, Tr., No. 1 Carrie S. Dean, Lge. 94. Swbg. 12 B.F.P.H., 4,981 ft.; swbg. and tstg. 4,982 ft.

Concho County

Clymore Co., Inc., No. 1 Hill, J. Frederick Sur. No. 1694. Drlg. 1,395 ft.

Crane County

Great Western Prod. No. 1-B Univ., Sec 5, Blk. 30, Univ. Sur. Fsg. baller 3,419 ft.
Gulf Oil Corp. No. 5 M. B. McKnight Sec. 1, Blk. 21-B, P.S.L. Sur. Drlg. 1,345 ft.
Magnolia Pet. Co. No. 12 W. P. Edwards, Sec. 12, Blk. 23-B, P.S.L. Sur. Drill pipe stuck 3,450 ft.
Magnolia Pet. Co. No. 1-18 University, Sec. 18, Blk. 30, Univ. Sur. Drlg. 3,215 ft.

Crockett County

Hanson & Anderson No. 1 W. T. Knoelke, Sec. 30, Blk. GG, H.E.&W.T. Sur. Spd. and S.D.
Humble No. 1 Ozona-Barnhart, Sec. 4, Blk. M-N, G.S.&F. Sur. Drlg. 4,356 ft.

Culberson County

Harry Niehaus No. 1 Caldwell, Blk. 109, Sec. 13, P.S.L. Sur. Drlg. 4,502 ft.
Quito Oil Co. No. 1 Cameron Lbr. Co., Sec. 24, Blk. 81, P.S.L. Sur. S.D.R. 945 ft.

Dawson County

Daw-Tex Oil No. 1 J. E. Neely, Sec. 28, Blk. 35, T.&P. Sur. Prep. cmt. 7-in. 4,369 ft.; pulling collapsed 7-in. at 4,450 ft.; W.O.C. 3,751 ft.; cmt. whipstock.

Dickens County

Bond D. Jones No. 1 Ford et al, I.&G.N Sur. Rng. csg. 3,508 ft.
Humble O. & R. Co. No. 1 Matador Ld. & Cattle Co., Sec. 26, Blk. 1, Shock & Arnold Sur.; 6,000-ft. test; drill pipe stuck 6,305 ft.

Ector County

M. B. K. Drlg. Co. No. 2 Gist, Sec. 9, Blk. 42, T.&P. Sur. R.U.S.T.
R. R. Rhodes No. 1 J. L. Johnson, Sec. 43, Blk. 42, T.&P. Sur. Rng. 10-in. 225 ft.; no report.
Sinclair Prairie No. 1 Fay Holt, Sec. 1, Blk. A, P.S.L. Sur. W.O.C.; split 7-in. 830 ft.; T.D. 4,100 ft.

El Paso County

Tri-State Oil Co. No. 1 Kinkel, S.D. 3,571 ft.

Gaines County

Osage Drlg. Co. No. 1 E. H. Jones, Sec. 20, Blk. 7-A, P.S.L. Sur. M.I.M.

Garza County

Gulf Oil Corp. No. 1 Swanson, Sec. 25, Blk. 2, H.&G.N. Sur. Flwd. 148 B.O. in 9 hrs.; P.B. depth of 7,400 ft.; P.B. 6,821 ft.; tstd. S.W.; P.B. 6,134 ft.; tstg.; drld. out to 6,857 ft.; P.B. 6,296 ft.; swbg and tstg.

Glasscock County

B. A. Duffy No. 1 Carter-Shell, Sec. 8, Blk. 33, T.&P. Sur. Drlg. 1,165 ft.
J. R. Petty No. 1 Joe Blake, Sec. 163, Blk. 29, W.&N.W. Sur. Drlg. 420 ft.

Hockley County

S. W. Richardson No. 1 A. E. Coe, Lbr 53, Lge. 40, Maverick C.S.L. Sur. Cd. several zones of sat.; P.B. 5,143 ft.; tstg. wtr. shutoff; flwd. 12 B.P.H.; prep. plug back more.
Texas Co. No. 1-C Mallett, Lbr. 11, Lge. 51, Scurry C.S.L. Sur. Bldg. drk.

Howard County

Dick Graham No. 1 P. Johnson, Sec. 34, Blk. 32, T.&P. Sur. Loc.
T. G. Shaw, Tr., No. 1-B Wilkerson, Sec 19, Blk. 34, T.&P. Sur. Drlg. 3,060 ft.

Hudspeth County

Haymon Kroupp Oil & Ld. Co. No. 1 Thaxton, SE¼ Sec. 34, Blk. 74, Twp. 6. Drlg. 5,861 ft.; S.G.
Haymon Krupp No. 1 Briggs, Sec. 24, Blk. 73, Twp. 7, T.&P. Sur. W.O.C. 5,365 ft.

Irion County

Clyde Crabb No. 1 W. M. Boelke, Tom Green C.S.L. Sur. Drlg. 1,510 ft.
J. W. Ellis No. 1 Sol Mayer, Sec. 240; Blk. 1, T.&P. Sur.; 2,100-ft. test. Lost hole, skidded 10 ft. east. Drlg. 720 ft.

Lynn County

John L. Baldridge No. 1 Alma Lbr. Co., Sec. 151, H.E.&W.T. Sur. W.O.C. 4,450 ft.

Martin County

T. G. Shaw, Tr., No. 1 Wilkerson, Sec. 35-A, B.&C. Sur. S.D. 3,785 ft.

Pecos County

Geo. T. Abell No. 1 W. Williams, Sec. 11, Blk. 3, H.&T.C. Sur. Drlg. 1,300 ft.
Ben Dansby No. 1 L. C. Lessenich, Sec. 45, Blk. 9, H.&G.N. Sur. Rng. 8-in. 610 ft.
J. L. Green No. 1 Iowa Realty Tr., Sec. 139, Blk. 10, H.&G.N. Sur. D.&A. 1,392 ft.
Leidecker & Cain No. 1 M. M. Lehn, Sec. 71, Blk. 10, H.&G.N. Sur. C.&P.
O. E. Schade No. 1 Neville, Sec. 72, Blk. 194, G.C.&S.F. Sur.; 2,500-ft. test. D.&A. 2,558 ft.
O. E. Schade No. 1 Otis Garrett, Sec 59½, Blk. 8, H.&G.N. Sur. Drlg. 200 ft.
Thomason Prod. Co. No. 1 Notions, Sec 1, Blk. 105, W. P. Howard Sur. S.D csg. 1,735 ft.
S. Thompson No. 1 Elsinore Cattle Co Sec. 54, Blk. D, G.C.&S.F. Sur. Rig burned; dropped baller in hole; S.D.O. 7,342 ft.
J. C. Trees No. 1 fee, Sec. 63, Blk. 8, H.&G.N. Sur. R.U. spudder 2,052 ft.

Reeves County

Artie Baker No. 1 J. W. Grider, Sec. 31, Blk. 58, P.S.L. Sur. S.D.R. 450 ft.

Schleicher County

Lone Star Gas Co. No. 1 Bert Page, Sec. 30, Blk. L, G.H.&S.A. Sur. Drlg. 4,010 ft.
Lone Star Gasoline Co. No. 2 Bert Page, Sec. 46, Blk. L, G.H.&S.A. Sur. Straightening hole 2,130 ft.

Scurry County

Coffield & Guthrie No. 1 First Natl. Bk., Snyder, Sec. 29, Blk. 97, H.&T.C. Sur. Drlg. 2,400 ft.

Tom Green County

Dan Short et al No. 1 J. G. Davidson, NW part of Lovie P. Moore Sur. Loc.
Southern Cross No. 1 Upton & Upton Sec. 20, Blk. A, A.B.&M. Sur. Drlg. 556 ft.; last report.
Spinner No. 1 Reed, Mason Ferry Ranch Sur. W.O.C.; cave 4,948 ft.
Tom Green Oil Co. No. 1 Schreiber, A. Krending Sur. No. 1663. S.D. 1,000 ft.

Upton County

White & Wilson No. 1 Webb, Sec. 178 Blk. 1, C.C.S.D.&R.G.N.G. Sur. S.D.; 7-in. 1,020 ft.

Ward County

McQueen & Clevenger No. 1 Geo. Sealy, Sec. 47, Blk. F, G.M.M.B.&A. Sur.
Robt. E. Mitchell No. 1 Allen, Sec. 7 Blk. 32, H.&T.C. Sur. P.B. 2,145 ft.; comp. 60 B.O.P.D.

Winkler County

Standard Oil, Texas, No. 2 Baird, Sec 13, Blk. 3-B, P.S.L. Sur. Drlg. 2,495 ft.

Yoakum County

Honolulu Oil No. 10-695 R. Bennett, Sec 695. Tstg. 5,250 ft.
Osage Drlg. Co. No. 1 Miller, Sec. 898 Gibson Sur. Drlg. 4,755 ft.
Shell Pet. Corp. No. 1 J. M. Rutts, Sec 743. P.B. 5,229 ft.; S.D.
Shell Pet. No. 1 Waples-Platter, Sec. 616 Drlg. 4,865 ft.
T. & P. Oil Co. No. 1 A. M. Brownfield Sec. 802. Drlg. 4,760 ft.

WEST CENTRAL TEXAS DISTRICT

Brown County

A. D. Bruce No. 1 L. J. Mauldin, Sec 15, H.&T.C. Sur. S.D.R. 480 ft.
E. C. Norman No. 1 Stella Rice, Chas Messenger Sur. No. 127. S.D.R. 997 ft.

Callahan County

Dobbs Oil Co. No. 1 Finley, Sec. 75 Bayland Orphans Home Ld. Skidded over to start new hole.
J. C. Jackson and Doug. Tomlingson, Jr., No. 1 T. J. Thompson, Sec. 30, B.B.B. &C. Sur. S.D. 1,880 ft.

Coleman County

Arcadia Ref. Co. No. 1 W. R. Roberts, D. J. Holt Sur. D.&A. 3,342 ft.
Oscar Howe No. 1 De Busk, Isaac Harris Sur. No. 164. Abd. 195 ft.
E. E. Kirkpatrick No. 1 F. Nixon, Burnett, C.S.L. Sur. S.D. 3,027 ft.

Comanche County

Comanche O. & G. Co. No. 1 J. E. McGuire, C. Rockefeller Sur. No. 3. Fsg. 2,910 ft.
E. T. DeArman No. 1 Moorman, Sec. 37, D.&D.A. Sur. Fsg. 2,600 ft.
O. L. Johnson No. 1 Mrs. W. Jones, Sec. 34, H.&T.C. Sur., Abst. 1610. Comp. 7 B.O.P.D.
Plains Prod. Co. No. 1 Runkle, Sec. 47, D.&D.A. Sur. Prep. rng. 10-in. 418 ft.

Eastland County

Dobbs Oil Co. No. 1 Greer, J. E. Hardy Sur., Ellenburger test. S.D.R. 2,215 ft.

Erath County

Wayne Chandler No. 1 Chandler, J. W. Moore Sur., Abst. 571. Drlg. 4,117 ft.
Collard No. 1 W. L. Payton, H. Pierson Sur. No. 1, Abst. 1105. S.D. 185 ft.

Fisher County

J. D. Baker No. 1 O. R. Burnham, Sec. 4, Blk. R, W. D. Richardson Sur. S.D. O. 3,214 ft.

Hamilton County

Wallace & Vickers No. 1 C. C. Lund, J. P. Bailey Sur. 51. Drlg. 2,635 ft.

Haskell County

Sawyer Drlg. Co. No. 1 A. J. Rowland Est., Sec. 5, Blk. 3, H.&T.C. Sur., 15 mi. E of Stamford. D.&A. 5,120 ft.

Hood County

Prince & Miller No. 1 J. H. Andrews, NW cor. of Geo. Sutherland Sur. S.D.O.; P.B. depth of 524 ft.

Jones County

Brown Eagle No. 1 Waterson, Andrews Sur. No. 191. T.D. 2,283 ft.; S.D.
R. B. Carrol No. 1 G. Herndon, Goliad C.S.L. Sur. S.D. csg. 2,077 ft.
Ed. L. Evans No. 1 B. J. Crier, Sec. 8, B.A.L. Sur. Drlg. 1,690 ft.
G. M. Gillispie No. 1, Sec. 54, O.A.L. Sur. Drlg. up baller 1,380 ft.
J. H. Sproules No. 1 James Nichols, Sec.

47, Blk. 16, T.&P. Sur. Tstg. 1,796 ft.; comp. 15 B.O.P.D.

Nolan County

Chas. E. Peddicord No. 1 Tipton, Sec. 43, Blk. 19, T.&P. Sur. S.D. 2,927 ft.

Palo Pinto County

W. K. Gordon No. 1 J. W. Conway, Ruidosa I.R.R. Sur. Drlg. 1,780 ft.

Parker County

Brown-Gardner Bros. No. 1 Gilbert, T.& P. Sur., Abst. 1956. S.D. 2,200 ft.

Shackelford County

W. J. Dettenhaim No. 1 Mrs. F. J. Lynch, Sec. 24, B.A.L. Sur. D.&A. 235 ft.

Fox & Rudd No. 1 Shotwell, Sec. 59, B.A.L. Sur. Fsg. 1,632 ft.

R. H. Gordon and Frank Pethybridge No. 1 C. B. Synder, 330 ft. fr. N and E lines, Sec. 38, L.A.L. Sur.; 4,500-ft. test. Est. 20 to 50 B.O.P.D.; T.D. 3,-660 ft.; S.D. 4,293 ft.

C. W. Waddington No. 1 Cottle, Sec. 42, Univ. Sur. S.P. and S.D.

TEXAS PANHANDLE

Collingsworth County

C. H. Mee and C. F. Anderson No. 1 V K. McCaskill, Sec. 18, Blk. 16, H.&G. N. Sur. S.D. 1,735 ft.

Johnson No. 1 Taylor. S.D. 875 ft.

Deaf Smith County

Uscan No. 1 Farwell. S.D. 5,650 ft.

Donley County

Robinson No. 1 Kuteman, Sec. 88, Blk 20, H.&G.N. Sur. S.D. 4,406 ft.

Gray County

Products O. & G. Co. No. 1 Mason Davis, Sec. 23, Blk. 23-M, H.&G.N. Sur. Loc.

Trippiehorn No. 2 Webb, Sec. 12, Blk A-9, H.&G.N. Sur. Cl. out 2,665 ft.

Lipscomb County

Darrouzett Oil Co. No. 1 Pugh, 1½ mi. S and 1 mi. W of Darrouzette. S.D.; wtr. 3,401 ft.

Roberts County

Whitlock No. 1 Cunningham. Drlg. 4,109 ft.

E. C. TEXAS WILDCATS

Cherokee County

C. C. Lanier No. 1 A. T. O'Neal, J. M Procella Sur., 3 mi. E of Troup. S.D.R. 2,700 ft.

Falls County

Marshall Hayes No. 1 M. Murphy, J. M. Sanches Sur., 2 mi. NE of Lott. Pmp. 27 B.O. 22 hrs.; T.D. 1,221 ft.

Freestone County

A. J. Willis No. 1 W. W. Craig, C. Teas Sur., 8 mi. N of Fairfield. Drlg. 1,-000 ft. last report.

Grayson County

F. H. E. Oil No. 1 Graham, Chas. Quillen Sur., 1 mi. S of Collinsville. D.&A. at 3,905 ft.

John Grey No. 1 Freedman, W. S Reeves Sur., 8 mi. NW Denison. R.U. Jim McMurrey No. 1 Dr. T. J. Long, J Garland Sur., 2 mi. S of Collinsville; 4,000-ft. test. S.D.O. 3,929 ft.

Ross & Marshall No. 1 J. N. Taylor, W. Moore Sur., 8½ mi. NW of Denison. Drlg. 608 ft.

Houston County

Cook & Mayo No. 1 C. A. Walling, B Parker Sur., 4 mi. N of Grapeland. D.&A. 6,077 ft.

Leggett & Gossett No. 1 B. F. Gardner, J. Thorn Sur., just N of Weldon. R.U and S.D.

Kaufman County

Sam Knoerr No. 1 J. B. Hunter, P Walker Sur., 5 mi. S of Terrell. S.D. 40 ft.

W. G. McGee No. 1 General American Life Ins. Co., John Baker Sur., 6 mi. w of Mabank. Drk.

Leon County

Humble O. & R. Co. No. 1 Ed F. Swift, H. W. Subblett Sur., 4 mi. NW of Navarro Crossing field. Loc.

Limestone County

H. Gant No. 1 Vol De Long, P. Varela Sur., 1⅛ mi. NW of Thelma. S.D. 2,-924 ft.

McLennan County

C. E. Porter No. 1 B. D. Burchett, De la Vega Sur., just SE Waco. S.D. 695 ft.

Navarro County

Guy Sitton No. 1 J. P. Fortson, T. J. Chambers Sur., 4 mi. E of Alma. S.D. 638 ft.

Rains County

McKinley & Hastings No. 1 McTaggert, B. Milder Sur., 1 mi. W of Emory. S.D. 30 ft.

Red River County

Bentley-Sheppard & Stevens No. 1 So. Pine Lbr. Co., G. S. Parks Sur., 17 mi. N of Clarksville. S.D. 71 ft.

Daniels No. 1 J. J. Gaston, Joseph Guest Sur., 2 mi. S. Detroit. Formerly abd. at 1,109 ft.; drilled deeper and shut down at 1,270 ft.

Smith County

R. W. Rair No. 1 Clark, J. Lewis Sur., 2 mi. W Mt. Sylvan. S.D. 190 ft.

J. H. Thomason No. 1 J. W. Bartlett, R. H. Stewart Sur., ½ mi. SE of Jamestown. Rmg. 1,958 ft.

Trinity County

C. D. Davis No. 1 J. D. Gibson, A. Donavan Sur., 4 mi. NE of Trinity. Gas blowout 148 ft.; S.D. 2,627 ft.

Upshur County

R. E. L. Johnson No. 1 Lizzie Parker, John B. Gay Sur. S.D. 4,004 ft.

Van Zandt County

F. A. Richardson No. 1-A B. C. Dodd, T. W. Hutchinson Sur., 2 mi. S of Grand Saline. S.D. 1,925 ft.

Wood County

Geo. Strake No. 1 Farrier, J. Walker Sur., 4 mi. E of Yantis. Drlg. 2,010 ft.

NORTH TEXAS WILDCATS

Archer County

Birdwell Oil Co. No. 31-B Oil Inv. Co., Lot 2, John Richards Sur., 5 mi. NW of Archer City; 4,200-ft. test. Drlg. 4,480 ft.

E. P. Griffin No. 1 W. T. Waggoner, Sec. 3, H.&T.C. Sur. O.S. 4,393-4,407 ft.; rng. 6⅝-in. to test.

L. Sikes No. 1 Miller, Wm. Shaw Sur. A-378. Drlg. 5,780 ft.

Baylor County

British Am. O. P. Co. No. 1 J. E. Cope, Sec. 220, T.&N.O. Sur. Drlg. 3,310 ft.

Clay County

H. S. Moss No. 1 T. J. Parmley, Sec. 6s. M.G.S.L. Sur. A-308. Loc.

Fleetwood & Kaufman No. 1 Prowers, H.&T.C. Sur., Blk. A. S.D.O. 5,005 ft.

Cooke County

Means & Howard No. 1 W. T. Lynch, A. Edmiston Sur. A-353. Matl. for 5,-000-ft. test.

Hardeman County

N. Gilbert No. 1 R. Weakley, Sec. 85, H. &T.C. Sur., 4,000-ft. test. Loc.

Jack County

Pitzer & West No. 1 F. Warren, Sec. 2784, T.E.&L. Sur. 6⅝ 4,365 ft.; L. 4,365-4,418 ft.; est. 30 bbls.; treating acid.

Young County

H. M. Leidecker No. 1 J. M. Nall, Sec. 1997, T.E.&L. Sur. Drlg. 2,410 ft.

Magnus & McLester No. 1 B. B. Teague, E. S. Colthrop Sur. A-1390, 6⅝-in. 3,-786 ft.; G.L. 3,780-3,825 ft.; treating with 6,000 gal. acd.; est. 200 bbls.; S. D.O.; est. 10 B.P.D.; tstg.

NEW MEXICO

Production estimates for the week ended March 4 follows:

Cooper	4,530
Eaves	870
West Eunice	110
Eunice	24,540
Hardy	3,280
Hobbs	14,320
Jal	940
Langlie	5,210
Lynch	550
Lynn	860
Mattix	3,850
Monument	25,290
North Lynch	40
Penrose	6,060
Rhoades	140
Skaggs	100
Skelly	2,110
South Eunice	3,480
South Lovington	160
Vacuum	8,330
Artesia-Maljamar	8,790
Getty	100
Hogback	200
Rattlesnake	610
Table Mesa	70
Total New Mexico	114,540

Canadian Fields

(Continued from Page 114)

formation, and good showings in the top of the Madison limestone.

Davolite Operations

In Turner Valley, Davolite Oil Co., sponsored by Davies Petroleums, Ltd., is starting its No. 1 test in LSD 10, Section 18-19-2w5. Davies Petroleums, Ltd., has secured 500,000 shares in the new company in exchange for acreage, including N half Section 18-19-2w5, 880 acres in North Turner Valley northwest of Home Oil Co. No. 2 producer, and 160 acres in Section 33-17-2w5, south of the unfinished Davies No. 3 well, standing at 3,250 feet, which will likely be completed jointly by the two companies.

Saskatchewan Operations

In southwestern Saskatchewan, Western Royalties No. 1 Twin Provinces, LSD 6, Section 21-11-29w3, is below 2,295 feet and preparing to change to rotary outfit.

New Incorporations

Trans-Alberta Oils, Ltd., has been incorporated under Alberta charter with head office at Calgary. Incorporators are Sydney A. Newman, Wilfred V. McKinnon, R. M. Linden and M. A. McKinnon, all of Calgary, and Leroy Bond of Irricana, Alberta.

Anglo-Canadian Operations

Despite drastic proration, Anglo-Canadian Oil Co. of Calgary and its nine associated companies have produced, up to January 31, 1939, a total of 1,572,893 bbls. of crude representing proceeds of $2,034,017.03. Up to the end of 1938, $654,232.30 had been distributed among shareholders. Prairie Royalties, with one producer, delivered 305,480 bbls., worth $383,019; while production and revenue of other Anglo-Canadian wells up to January 31 was:

	Bbls.	Value
Foundation Roy. No. 1.	189,710	$294,545
Monarch Roy. No. 1 . . .	162,699	224,822
Firestone Pet. No. 1 . . .	137,322	178,778
Westflank Oil, 3 wells .	205,069	264,553
Spy Hill Roy. No. 1 . . .	25,824	29,500
Frontier Roy. No. 1 . . .	244,474	304,045
Sundance Roy. No. 1 . .	188,262	223,464
Coronation Roy. No. 1 .	84,902	97,946
Anglo-Canadian No. 1 . .	24,354	27,961
Anglo-Canadian No. 3 . .	4,787	5,378

The production period varied from 26 months to 1 month.

Illinois Fields

(Continued from Page 83)

In Crawford County, Caywood No. 1 Tahill, C W half SE NW Section 31-6n-14w, second principal meridian, was shut down at 930 feet.

In Clay County, Kingwood Oil Co. and Continental Oil Co. No. 1 VanDyke, SE SE SW Section 11-5n-6e, moving in rotary. Kingwood Oil Co. and Gulf Refining Corp. No. 1 Davis, NW SE SE Section 26-5n-5e, Roseclaire at 2,494 feet, coring at 2,502 feet. Burnett and others No. 1 Smith, NE NW SE Section 21-5n-5e, total depth 2,540 feet, plugged back to 2,403 feet and run 2-inch pipe with packer to test Aux Vases at 2,388-2,402 feet, trying to swab. R. Duncan No. 1 Liggett, SE NW SE Section 17-5n-5e, total depth 2,376 feet, set 5 7/8-inch casing at 2,356 feet and drilled out cement, bailed down and shut down. It had a small showing of oil around the control head but had not been tested.

In Fayette County, Hayne & Thomas No. 1 Fisher, C SE SW Section 11-5n-2e, drilling at 450 feet.

In Clay County, Kroeger No. 1 Chaney, NW SW SW Section 18-3n-7e, drilling at 2,607 feet. Glen Dean was topped at 2,410 feet.

In Madison County, Simmel and others No. 1 Keller, NE NE SE Section 7-3n-8w, drilling at 610 feet.

In Clinton County, Lindsey Brothers and British American Oil Co. No. 1 Boenhoff, NW NW NE Section 34-3n-4w, base of Cypress at 905 feet, drilling at 927 feet, in shale. Kesl and others No. 1 Marbaum, NW NE SE Section 12-3n-3w, Benoist sand at 1,161-69 feet, mostly salt water, will move in spudder to recondition hole. Noelkemper & Murphy No. 1 Kile, SE cor. NE Section 11-3n-3w, set 6-inch casing at 1,055 feet, total depth 1,085 feet. Petroleum Service Co. No. 1 Botts, NW SW SW Section 17-2n-2w, total depth 1,113 feet, drilling on iron 10 feet off bottom. H. Flannery, No. 1 Charles Gerdes, NW NW SE Section 3-2n-2w, shut down at 870 feet. Claude Bell No. 1 Althoff, NW SE NE Section 8-1n-3w, Cypress sand at 1,015-36 feet, water in the last foot, sand shot with 15 quarts; set 5¼-inch casing at 1,015 feet; drilled out cement and 200 feet of water rose in the hole; will recement casing. Webb and others No. 1 Hussman, NE NE SE Section 12-1n-2w, rig up.

In Shelby County, M. B. Hughes made a location for No. 1 Clara Carr, C SE NE Section 12-13n-2e.

In White County, W. M. Angle and others made a location for No. 1, SW SE SW Section 14-6s-9e.

CENTRAL OHIO

NEWARK, Ohio, Mar. 6.—Two gas wells in Licking County, one gauging 7,000,000 cu. ft. and the other 2,600,000 cu. ft., have enlivened the activity in the Central Ohio area. The largest of the two wells was struck in the Clinton sand at 2,544-59 feet by Allen Willey and others on the Homer Van Wey tract in Newton Township. The well is located 800 feet northwest of the southeast corner of the township. Ohio Fuel Gas Co. No. 1 Albert Steve gauged 2,600,000 cu. ft. in the lime at 2,170-80 feet, and is located in Lot 6, second quarter, Madison Township. Other completions are as follows:

Guernsey County, Washington Township, Jones & Jewell No. 1 E. E. Davidson, Section 3, dry in the Berea, total depth 1,396 feet.

Knox County, Union Township, Ridgeway Co. No. 1 Cal Simmons, Section 6, is a gas well with an open flow of 260,000 cu. ft. from Clinton sand at 2,718-54 feet.

Lorain County, Grafton Township, Dillon & McFrederick No. 1 William C. Moore, Lot 34, has an open flow of 300,000 cu. ft. of gas from the Clinton sand, total depth 2,681 feet.

Meigs County, Rutland Township, H. M. Nelson No. 1 G. E. Might, Section 25, was dry in the Maxon sand and abandoned at 744 feet. Salisbury Township, T. E. Marshall No. 4 Martha Hysell, Section 33, is a gas well making 350,000 cu. ft. open flow from both the Salt and the Maxon sands, total depth 903 feet.

Monroe County, A. E. Robinson No. 1 Ira Miracle, Section 25, Franklin Township, is good for an open flow of 235,000 cu. ft. from the Injun sand at 1,345-50 feet.

Stark County, Jackson Township, Obermiller Brothers No. 1 P. Kranch, Section 2, made 185,000 cu. ft. of gas from the Clinton sand at 4,442-52 feet.

Tuscarawas County, Jefferson Township, Brendel Producing Co. No. 2 Marsh Lumber Co., Section 12, is a small Clinton gas well gauging 120,000 cu. ft.; sand lay at 4,739-74 feet and 4,815-25 feet.

Washington County, Liberty Township, Carpenter & Parks No. 1 A. E. Pryor, Section 21, is a Germantown sand gas well with an open flow of 450,000 cu. ft. at 1,183-98 feet. Warren Township, two small oil wells were completed, Don Smith No. 17 D. M. Robinson, Section 36, is making 2 bbls. of oil per day from the first Cow Run sand at 640-95 feet; An-

derson and others No. 1 Fanny Sams, Section 32, is a 1-bbl. pumper in the Maxon sand at 1,322-52 feet.

Lima Field

The deep test in Henry County, Harrison Township, being drilled by McAfee and others on the Lucy Damon tract, Section 24, had a showing of oil at 2,480-81 feet and shut down to run casing to plug off the Blue Lick Water encountered at 2,438-53 feet, in order to test the oil showing.

Wood County, Portage Township, Goodwill Oil & Gas Co. is shut down at 1,880 feet on the Lester Shinew test in Section 5.

Eastern Fields

(Continued from Page 97)

others made a location on the Noah Farley heirs in Clay district, elevation 1,098 feet.

In Wetzel County, the Carnegie Natural Gas Co. made a location on the Nancy J. Rush farm in Proctor district, elevation 1,120 feet.

In Clay County, the Thompson Gas Co. is drilling at 620 feet in the Thompson Land & Coal Co. No. 11 and 540 feet in the No. 12, both in Pleasants district. Here the Elk River Gas Co. is down 1,785 feet in the J. S. Brown test. In Nicholas County the Hope Natural Gas Co. is at 520 feet in No. 7822 C. & H. Corp., Jefferson district.

East Texas Fields

(Continued from Page 84)

No. 1 G. P. Stewart, 955 feet, dry. Wootten & Steele No. 1 G. Stewart, 975 feet, dry.

Wilbarger County

Lawson Petroleum Co. No. 1 W. T. Waggoner Estate, 1,314-17 feet, 11 bbls. Lawson & Leavell No. 3 Waggoner A, 1,440-1,646 feet, 65 bbls. W. H. Rogers No. 1 Morris, 2,008 feet, dry.

EASTERN TEXAS

DALLAS, Tex., Mar. 6.—New wildcat locations featured the week's development in the East Texas district with tests being staked or planned in six different counties.

Activity in the southern counties of the East Texas sector was featured by the staking of three outposts to the Navarro Crossing pool of northwestern Houston County. About 4 miles northwest of the Navarro Crossing pool, Humble Oil & Refining Co. spudded and set surface pipe in its No. 1 E. F. Swift, H. W. Sublett Survey, Abstract 779. The well was spudded to 350 feet and 150 feet of 13⅜-inch casing was cemented. One mile north of the pool, Killough and associates staked their No. 1 W. S. Perrome, in the southwest 100 acres of the N. Wade Survey. The wildcat is reported to be on farmout acreage of the Sun Oil Co., with both the Sun and Humble contributing toward the test. About a mile south of the nearest production, which is a well just now being completed, the Humble has staked location for its No. 1 G. W. Mobley, along the west line of the John La Riviere Survey. The location is about a half mile south of the Walter Gholson dry hole at 5,889 feet drilled several years ago.

Extending production about a quarter mile south in the Navarro Crossing pool, Humble Oil & Refining Co. No. 1 Tom Tyron, was making approximately 7 bbls. of fluid per hour, through a one-eighth inch tubing choke. Woodbine sand was topped in this test at 5,792 feet with saturation being encountered at 5,878 feet.

Henderson County

A wildcat was staked in Henderson County about 3½ miles northeast of the Flag Lake field. It is the A. J. Tyler and Charles Clinton Smith, both of Dallas, No. 1 Rowe & Baker, in the southwest corner of the J. T. Childers Survey. It is on land belonging to Dr. R. S. Rowe and G. C. Baker, the actual land for the test having been farmed out from the Amerada Petroleum Corp. The test will seek Woodbine sand production and the drill site is 450 feet northeast of the late Robert Penn No. 1 G. E. Murphy. The latter test created most of the leasing play of the earlier days of Henderson County's oil activity and has been the source of much discussion as to why it did not make a commercial producer from the saturation which it logged.

Leon County

Inactive since the discovery of oil last fall, the Buffalo area of northern Leon County was in line for a test as leases were filed at Centerville for a drilling block. The leases were taken by J. D. Hughes Oil Co., Mexia, from Hyman Peristone, Dallas, and cover acreage centering in the J. F. Files Survey, Abstract 289. The terms of the trade call for a well to be started in 90 days and the payment of $100 per acre in oil out of one-fourth of seven-eighths of the production. Definite location has not been announced, but it will be approximately a mile northwest of the discovery, Hughes No. 1 Sam Bane, and operations will start some time in March. The discovery well has been shut down for several weeks for lack of an outlet. It is reported capable of making its 100-bbl. allowable.

Freestone County

A new wildcat test will be drilled in Freestone County by A. J. Willis and associates who recently completed a dry hole in the same county. The new test is the operator's No. 1 Craig, in the C. Teas Survey, about 8 miles north of Fairfield, and is contracted to 4,000 feet.

Camp County

Camp County, the scene of much leasing but little drilling during the past year, has been given a Woodbine sand wildcat by a group of Dallas business men. While definite location is in the making, E. W. Peter, representative of the group, is said to have taken a block of 6,500 acres from F. W. Maddox, south of the town of Pittsburg. The block centers around the Mathew Cartwright Survey, with tentative location in the vicinity of the dry hole drilled by W. C. McGlothin of Corsicana to the Paluxy sand around 5,300 feet.

Limestone County

A new Woodbine sand wildcat test is due to start in Limestone County's Thornton area. The test is the Harvey Richardson, of Mexia, No. 1 N. H. Banks, 10-acre tract, in the B. Davis Survey, 3 miles northeast of Thornton. Contract depth is said to be 4,000 feet.

EAST TEXAS FIELD COMPLETIONS

(One-hour tests)

Gregg County—Longview Area

Humble Oil & Refining Co. No. 19 Willingham, 3,614-29 feet, 40 bbls. Shell Petroleum Corp. No. 12 R. L. Bassham, 3,500-3,685 feet, 60 bbls.

Gregg County—Kilgore Area

Byrd-Frost No. 6-A J. B. Watson, 3,535-68 feet, 50 bbls. Overton Refining Co. No. 26 I.&G.N., 3,550-70 feet, 40 bbls. Overton Refining Co. No. 24 I.&G.N., 3,550-70 feet, 50 bbls. Shell Petroleum Corp. No. 11 Williams-Bonner, 3,554-3,644 feet, 32 bbls. R. G. Trippett No. 4 Johnson, 3,546-57 feet, 40 bbls.

Rusk County—Kilgore Area

Gulf Oil Corp. No. 24-A C. E. Christian, 3,637-80 feet, 40 bbls. Humble Oil & Refining Co. No. 185 L. D. Crim, 3,610-12 feet, 80 bbls.

Upshur County

Shell Petroleum Corp. No. 29 C. C. Landers, 3,750-85 feet, 50 bbls.

EAST CENTRAL TEXAS COMPLETIONS

(24-hour tests)

Freestone County

Carter-Cragg No. 1 J. V. Johnson, 5,255-84 feet, 115,000,000 cu. ft. gas.

Grayson County

F. H. E. Oil Co. No. 1 Graham, dry and abandoned at 3,905 feet.

Leon County

Lone Star Gas Co. No. 1 Duncan, 5,638-79 feet, 115,000,000 cu. ft. gas.

Titus County

Humble Oil & Refining Co. No. 1 Temple, 4,322-32 feet, 399 bbls.

STANDARD OIL CO. OF CALIFORNIA AND UNION OIL CO.

Crude oil prices at the well effective June 22, 1936

Gravity—	Signal Hill (Long Beach)	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda-Brea Canyon	Athens-Rosecrans	Dominguez	Ellwood Terrace	Torrance	Richfield	Whittier E. Coyote (La Habra)	Montebello	W. Coyote Hills	Santa Fe Springs	Mountain View	Elk Hills Elwin-Vista Hills Midway-Sunset Lakeview Area	Lost Hills	Coalinga	Santa Paula*	Wheeler Ridge	Kettleman Hills	Orcutt*
14-14.9	$.80	$.79	$.74	$.78	$.79	$.80	$.76	...	...	...	$.80	$.76	$.76	$.77	$.78	...	...	$.70	$.70	$.70	...	...	$.70	...
15-15.9	.80	.79	.74	.78	.79	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.70	...
16-16.9	.80	.79	.74	.78	.79	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.70	$.70
17-17.9	.80	.79	.74	.78	.81	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.71	.70
18-18.9	.80	.79	.74	.78	.84	.80	.78	...	...	...	.82	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.78	.72
19-19.9	.82	.79	.74	.82	.87	.84	.81	...	...	...	.85	.76	.76	.77	.78	...	$.70	.74	.74	.71	$.70	...	.75	.74
20-20.9	.85	.79	.74	.85	.90	.88	.84	...	...	...	.88	.78	.82	.77	.80	...	.70	.78	.78	.72	.70	...	.77	.77
21-21.9	.88	.79	.74	.89	.93	.93	.88	...	...	...	.91	.80	.85	.77	.84	$.78	.73	.82	.82	.74	.70	...	.79	.80
22-22.9	.92	.82	.74	.92	.96	.98	.92	...	...	...	.93	.84	.89	.79	.88	.78	.77	.87	.86	.78	.72	...	.82	.83
23-23.9	.95	.86	.77	.96	.99	1.02	.96	$.84	$.79	...	.96	.88	.93	.82	.92	.78	.80	.92	.90	.82	.76	...	.85	.86
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	...	.99	.91	.96	.85	.96	.82	.84	.97	.94	.86	.79	...	.87	.88
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	...	1.02	.95	...	.89	.99	.86	.85	1.01	.98	.90	.88	...	.90	.91
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	...	1.05	.98	...	.92	1.03	.90	.91	1.06	1.02	...	...	...	.92	.93
27-27.9	1.10	1.05	.88	1.11	1.12	...	1.10	1.03	.88	...	...	1.02	...	.96	1.06	.95	.95	1.10	1.06	...	...	...	.95	...
28-28.9	1.14	1.10	.90	1.14	1.15	...	1.14	1.07	.90	...	...	1.06	...	.99	1.10	.99	.99	1.15	1.10	...	...	...	.97	...
29-29.9	1.17	1.15	.93	1.18	1.18	F.O.B.	1.17	1.12	.93	...	...	1.09	...	1.03	1.14	1.03	1.02	1.20	1.14	...	...	...	.99	...
30-30.9	1.21	1.19	.95	1.22	1.21	our	1.21	1.17	.95	F.O.B.	...	...	...	1.07	1.17	1.08	1.06	1.25	1.18	...	...	...	1.01	...
31-31.9	...	...	...	...	1.24	Pipe	1.24	1.22	.97	Ship	...	...	...	1.11	1.21	1.12	1.09	1.29	...	...	...	...	...	...
32-32.9	...	...	...	...	1.27	Line	1.27	1.27	1.00	...	...	...	...	1.14	1.25	1.16	1.13	1.34	...	...	...	...	...	...
33-33.9	...	...	...	...	...	...	...	1.32	...	1.28	...	...	...	1.18	1.28	1.20	1.17	1.38	...	...	...	$1.19	...	...
34-34.9	...	...	...	...	...	...	...	1.37	...	1.32	...	...	...	1.22	1.32	1.25	1.20	...	...	...	...	1.23	...	...
35-35.9	...	...	...	...	...	...	...	1.42	...	1.35	...	...	...	1.25	...	1.29	...	...	...	...	...	1.27	...	...
36-36.9	...	...	...	...	...	...	...	1.46	...	1.39	...	...	...	1.29	...	1.33	...	...	...	...	...	1.31	...	...
37-37.9	...	...	...	...	...	...	...	1.51	...	1.43	...	...	...	1.32	...	1.37	...	...	...	...	...	1.35	...	...
38-38.9	...	...	...	...	...	...	...	1.56	...	...	...	...	...	1.36	...	1.42	...	...	...	...	...	1.39	...	...
39-39.9	...	...	...	...	...	...	...	1.61	...	...	...	...	...	1.40	...	...	...	...	...	...	...	1.43	...	...
40-40.9	...	...	...	...	...	...	...	1.66	...	...	...	...	...	1.43	...	...	...	...	...	...	...	...	...	...

Newhall, McKittrick, Kern River, Kern Front and Round Mountain, 70 cents for all grades. *Posted by Union Oil Co. Same company's Brea Canyon schedule stops at $1.14 for 28 degrees and over, and Belridge and Lost Hills schedule stops at $1.32 for 37 degrees and over. By Standard Oil Co., effective October 15: El Segundo, 14 to 18.9 degrees, 80 cents; 19-19.9, 82 cents; 20-20.9, 85 cents; 21-21.9, 88 cents; 22-22.9, 92 cents; 23-23.9, 95 cents; 24-24.9, 99 cents; 25-25.9, $1.03; 26-26.9, $1.06; 27-27.9, $1.10; 28-28.9, $1.14; 29-29.9, $1.17; 30-30.9, $1.21. Wilmington, 14 to 16.9, 75 cents; 17-17.9, 77 cents; 18-18.9, 79 cents; from 19 degrees upward, prices same as Signal Hill.

Market Record of Active Oil Stocks

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1939 High	1939 Low	Week ending Mar. 4 High	Week ending Mar. 4 Low	Week ending Mar. 4 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1938	Com. sh. earn. 1937	Com. sh. earn. 1936	1938 High	1938 Low	1937 High	1937 Low
69½	61	62¼	61	62¼	Amerada Corp.	788,675	N.P.	50cQ	1-31-39	$2.00	$3.04	$2.52	78	55	111⅞	51½
23½	20⅞	22	21¼	22	Atlantic Refining	2,663,999	$25	25cQ	3-15-39	1.00	3.51	2.59	27⅜	17¾	37	18
21½	15⅝	18⅞	17⅞	18⅝	Barber Asphalt Co.	390,223	$10	75c	12-16-37	....	1.91	1.14	23¾	12⅛	43⅜	10⅛
19½	14¾	17	16⅛	17	Barnsdall Oil Co.	2,250,344	$5	25cQ	2-1-39	1.00	.85	1.01	21⅝	10⅛	35¼	10
9¼	8	8⅞	8½	8¾	Consolidated Oil Corp.	13,915,167	N.P.	20cQ	2-15-39	.80	1.48	1.18	10¾	7	17⅞	7
31½	26¼	26¾	26	26½	Continental Oil of Delaware	4,682,583	$5	25cQ	3-31-39	‖1.00	2.98	2.05	35¾	21¼	49	24
8⅜	6½	7⅜	6⅞	7⅜	Houston Oil (new)	1,098,618	$25	....	10-17-30	....	.94	—.03	9¾	5	17⅝	4¾
16½	13⅝	15½	14¾	15½	Mid-Continent Petroleum	1,857,912	$10	35c	12-1-38	.60	2.86	2.57	22⅝	12¼	35⅝	14
14⅞	12¾	13¼	12⅝	13¼	Mission Corporation	1,382,945	$10	$1	6-29-38	1.00	1.31	.48	17¾	10⅝	34	15
15½	11⅝	13½	12½	13⅜	National Supply	1,155,170	$10	$2 pf.‡	12-22-37	....	4.90	2.02	23	12½	41⅜	17⅝
10¼	8⅝	9¼	8¾	9⅛	Ohio Oil Co.	6,563,377	N.P.	20c	12-15-38	.20	1.30	.70	14⅞	8⅜	22⅞	8
11⅞	10⅜	11	10½	11	Pacific Western Oil	1,000,000	N.P.	50c	12-20-38	.50	1.39	1.58	15⅞	10¼	29¾	11¾
6¾	6¼	6½	6½	6½	Pan American Pet. & Trans.	4,702,945	$5	$1*	12-21-37	....	1.18	.52	9¼	6¼	17⅛	7
43¾	37⅛	40¼	39	40¼	Phillips Petroleum	4,449,052	N.P.	50cQ	3-1-39	‖2.00	5.42	4.02	44⅜	27¼	64	30⅛
22½	20¼	22½	21¼	22⅜	Plymouth Oil Co.	1,029,800	$5	35cQ	3-31-39	1.40	2.85	1.65	25⅜	15	29⅞	13
11¼	8⅜	9⅞	9¼	9⅞	Pure Oil Co.	3,285,120	N.P.	25c	12-1-37	....	2.15	1.63	13½	8¼	24⅜	8¾
10¼	8⅝	9⅝	9	9⅜	Richfield Oil Corp.	3,896,638	N.P.	50c	12-21-38	.50	.35	....	9⅞	5	6½	4⅛
22⅜	19	20¼	19⅜	20¼	Seaboard Oil of Delaware	1,244,383	N.P.	25cQ	3-15-39	1.00	1.97	2.00	27½	15½	54⅛	16
15⅛	11⅜	13⅞	18¾	13¼	Shell Union Oil	13,070,625	N.P.	35c	12-20-38	.70	1.44	1.57	18⅝	10	34⅜	14⅞
29½	21	26	24½	26	Skelly Oil	1,003,949	$15	50c	12-15-38	1.00	6.07	4.42	34⅜	18½	60⅝	26½
13¾	12	13¼	12¼	13¼	Socony-Vacuum	31,151,071	$15	25cSA	3-15-39	.50	1.82	1.38	16⅜	10⅝	23¼	13
29¼	26¾	28⅝	27⅝	28½	Standard Oil of California	13,014,754	N.P.	30cQ†	3-15-39	1.40	3.17	1.79	34⅞	25⅛	50	27½
29⅛	26⅛	27⅛	26⅝	27	Standard Oil (Indiana)	15,267,030	$25	25cQ	3-15-39	1.00	3.66	3.09	35½	24¾	50	26½
50⅜	50⅜	50⅜	50⅜	50⅜	Standard Oil of Kansas	112,837	$10	$2	12-8-38	2.00	6.93	1.91	50⅛	32½	43	30⅝
53¼	47¼	49¾	48½	49½	Standard Oil of New Jersey	26,224,767	$25	50c§	12-15-38	$1.50	5.64	3.73	58⅜	39¾	76	42
66	55	61	60¼	60¼	Sun Oil	2,316,484	N.P.	25cQ	3-15-39	1.00	3.86	3.25	65⅛	45	77½	44½
3¼	2⅝	2⅞	2¾	2¾	Superior Oil Corp.	1,388,079	$1	10c	12-28-38	.10	.32	.14	4¼	1¾	7¾	1½
48¼	42¼	44⅛	42⅛	43¼	Texas Corp.	10,875,006	$25	50cQ	4-1-39	2.00	5.02	4.10	49⅝	32⅝	65⅛	34¾
5¾	4⅝	5½	5⅛	5⅜	Texas Gulf Producing Co.	888,142	N.P.	15c	12-15-38	.15	.68	.93	5⅞	2⅝	9⅝	2
10⅛	8¼	9	8½	8⅞	Texas Pacific Coal & Oil	888,236	$10	10c	3-1-39	.40	1.11	.72	12½	7	16⅝	5⅜
14⅛	12¼	13⅜	12⅞	13⅜	Tide Water Associated	6,369,175	$10	25cQ	3-1-39	1.00	2.08	1.03	15¾	10⅛	21⅝	13⅛
19¾	18¼	19⅜	18⅝	19⅜	Union Oil of California	4,666,270	$25	30cQ	2-10-39	1.20	2.58	1.40	22½	17⅛	28¼	17½
23⅝	21	22¼	21¾	22	Union Tank Car Co.	1,200,000	N.P.	30cQ	3-1-39	1.30	1.70	1.76	23½	20	31½	22
3⅝	2⅞	3⅛	3	3⅛	Wilcox Oil & Gas	506,522	$5	....	5-10-28	....	.24	—.06	3½	1⅝	6¼	1¾

*Payable in 3½ per cent notes. †Includes extras. ‡One-tenth share $2 preferred stock. §Also 1½ per cent stock dividend. ‖Also right to subscribe to bonds.

New York Curb Exchange

1939 High	1939 Low	Week ending Mar. 4 High	Week ending Mar. 4 Low	Week ending Mar. 4 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1938	Com. sh. earn. 1937	Com. sh. earn. 1936	1938 High	1938 Low	1937 High	1937 Low
9	7⅜	8⅞	8½	8⅝	American Republics Corp.	1,308,049	$10	10c	7-11-38	$0.10	$0.27	$0.28	11¾	5	10	6⅝
7¼	5⅝	6	5⅝	5¾	Bridgeport Machine Co.	260,000	N.P.	$1.25	12-30-37	....	1.90	1.26	10¼	4⅞	21⅜	7
30⅜	27¼	29½	29½	29½	Buckeye Pipe Line Co.	200,000	$50	50c	3-15-39	2.00	4.02	4.40	39	22½	51½	36
130	121½	..	..	..	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	3-27-39	6.50	6.73	7.46	128	97	12	95½
9¼	6⅝	8⅜	7⅞	8⅛	Cities Service (new)	3,714,317	$10	....	6-1-32	....	1.02	.13	11	5½	5⅝	1½
1⅛	1/16	⅞	1/16	1/16	Cosden Petroleum	462,551	$1	....	.....	....	.19	....	2⅜	⅞	5½	1½
23¾	19½	21¼	19½	21	Creole Petroleum	6,975,383	$5	50cSA†	12-15-38	1.00	1.61	1.23	27½	17½	38⅜	20¼
7⅛	6¼	6⅝	6½	6½	Darby Petroleum	351,390	$5	25cSA	1-15-39	.50	1.36	1.26	10¼	5½	18⅝	6½
2	1¾	2	2	2	Derby Oil & Refining	263,162	N.P.	....	.....	...	1.34	.66	3½	1½	8⅜	2¼
20	20	..	..	..	Eureka Pipe Line	50,000	$50	50c	2-1-39	3.00	—.12	—.62	31	16	47½	24½
40	35⅞	38¾	38	38⅝	Gulf Oil Corp.	9,076,202	$25	25cQ	4-1-39	1.00	3.51	2.96	46⅞	33	63½	33
69⅜	60⅛	64½	60⅛	64½	Humble Oil & Refining	8,987,840	N.P.	37½c	4-1-39	3.00	5.22	3.80	72⅝	56	87	54⅞
17	16	17	16⅝	17	Imperial Oil of Canada	26,965,078	N.P.	62½cSA†‡	12-1-38	1.25	.98	.95	19½	14⅛	24¼	14½
7	6¼	6½	6½	6½	Indiana Pipe Line	300,000	$10	20c	11-15-38	.50	1.03	1.00	9⅜	6	15	5⅞
27½	24¾	26⅞	26⅛	26⅞	International Petroleum	14,324,088	N.P.	$1.25†‡	12-1-38	2.50	....	1.81	31¼	21	39½	23½
3½	2¾	2⅞	2⅞	2⅞	Kirby Petroleum Co.	500,000	$1	10c	4-15-38	.10	.17	.20	5	2⅛	8¾	2⅜
20¼	17½	18¼	17⅞	18¼	Lion Oil Refining	434,820	N.P.	25cQ	12-15-38	1.00	2.17	1.43	25⅛	15⅝	34	12½
9½	8⅝	9¼	9	9¼	Lone Star Gas	5,553,747	N.P.	20c	4-20-39	.60	1.14	1.02	10⅜	6⅝	14¼	5¼
7¾	6¾	7¼	7	7	Louisiana Land & Exp.	2,977,449	N.P.	10cQ	3-15-39	.45	.58	.64	9⅜	6½	15¼	6¾
8¾	8⅛	8½	8⅛	8½	Midwest Oil Co.	998,444	$10	50c	12-15-38	1.00	1.14	.95	9¾	6⅝	14⅝	6¼
5⅜	4⅞	5⅜	5¼	5⅜	Mountain Producers	1,593,584	$10	30cSA	12-15-38	.60	.76	.62	5¾	4½	7⅞	4⅛
13⅛	12	13½	12⅝	12⅞	National Fuel Gas	3,810,183	N.P.	25cQ	1-16-39	1.00	.96	1.19	14⅝	11½	19½	12
8½	7¼	8½	8¼	8½	National Transit	509,000	$12.50	40c	12-15-38	.75	1.19	.79	9¼	6½	12½	7¼
1¾	1½	..	..	..	New Mexico and Arizona	1,000,000	$1	1c	12-1-37	....	.02	.02	2⅝	1½	5	1⅛
4½	4	4⅞	4½	4⅞	New York Transit	100,000	$5	15c	4-15-39	.25	.49	.34	4½	3½	5⅜	3⅞
5½	4½	5¾	4¾	5¾	Northern Pipe Line	120,000	$10	15c	12-1-38	.35	.78	.66	6	4	12¾	5¾
7⅝	5½	6⅛	5¾	5⅞	Pantepec Oil	2,441,142	$1	....	.....	....	....	.05	7¾	3½	9⅝	2¾
2⅜	1⅞	2	2	2	Root Petroleum Co.	336,045	$1	25c	2-1-37	....	—.17	.45	4½	1⅝	12¾	2
3	2⅛	..	..	..	Ryan Consolidated	296,931	N.P.	....	.....	....	.46	....	4	2⅛	6½	2¼
3¾	3½	4	4	4	Southern Pipe Line	100,000	$10	15cSA	3-1-39	.30	.85	.41	5⅜	3¼	7¼	3⅞
34¼	32	33	32½	33	South Penn Oil	1,000,000	$25	37½cQ	3-31-39	1.75	4.64	3.59	39	28¾	56	35
19	18½	..	..	..	Southwest Penna. Pipe Lines	35,000	$50	50cQ	12-28-38	2.00	.95	.97	22¼	16½	42	20
18½	17½	18⅜	18½	18¼	Standard Oil of Kentucky	2,604,790	$10	50cQ†	3-15-39	1.25	1.60	1.46	18¾	15	21⅛	14¾
6¾	6	6½	6½	6½	Standard Oil of Nebraska	166,403	$25	25c	3-29-37	....	—.58	.42	8¾	5½	13¾	8
21¼	19	20	19¾	19⅞	Standard Oil of Ohio	753,740	$25	25c	3-15-39	1.00	3.67	4.77	22¾	16¼	45	16
2⅝	2	2½	2⅛	2¼	Sunray Oil	2,006,176	$1	5c	4-27-39	.05	.42	.26	3¼	2	4⅞	2
4	3	3½	3¼	3½	Texon Oil & Land	936,024	$2	15cQ	9-30-38	.60	.51	.36	5¼	3½	7⅝	2
5½	4	4⅛	4	4	Transwestern Oil Co.	750,000	$10	....	.....	....	.48	.06	7⅝	4¼	13⅞	4⅝
3⅜	2¾	3	2¾	2⅞	United Gas Corp.	7,818,959	$1	....	.....	....	.25	.20	5¼	2⅝	13⅞	3

†Includes extras. ‡Payable in Canadian funds. §Of which $1 was in preferred stock.

Personal Paragraphs

HARRY J. BAUER has been reelected president of the Automobile Club of Southern California, and ALEXANDER B. MacBETH, president of the Southern California Gas Co., was reelected first vice president. Both were returned to the board of directors for three-year terms.

L. H. DEATHERAGE, sales manager of the Bell Oil & Gas Co., returned to his home in Tulsa last Saturday after three weeks in Palm Beach, Fla., recovering from a throat affection which had necessitated total nonuse of his voice. He was accompanied by Mrs. Deatherage and their children, Jo Ann and Bobby. Mr. Deatherage's condition is much improved.

W. T. WALLACE, vice president of the Gulf Oil Corp., in charge of the New York production division, is on vacation in Florida.

R. H. MORRISON, formerly vice president of the California-Texas Oil Co., with headquarters in New York, has been granted six months' leave of absence and is now in California.

W. L. JAMES, purchasing agent for Stanolind Oil & Gas Co., was elected vice president of District 2 for the coming fiscal year by the Purchasing Agents Association of Tulsa last week.

G. C. HOYT, one of the organizers of Citizens Gas Co., Great Falls, Mont., has been elected manager, succeeding WALTER TILLMAN, who had held the post since the company was organized in 1928.

LON D. CARTWRIGHT, JR., district geologist for the Skelly Oil Co., and J. BOYD BEST, chief geologist for the Mills Bennett Production Co., have been elected for two-year terms by the Houston Geological Society as district representatives with the American Association of Petroleum Geologists.

H. W. MANLEY, formerly division engineer for the Barnsdall Oil Co., Tulsa, was advanced last week to the post of general superintendent of the gas and gasoline department. He succeeds A. J. SCHLOSSER, who retired on account of ill health. Mr. Manley joined Barnsdall in 1929. He graduated as a mechanical engineer from Oklahoma A. & M. College.

B. L. PILCHER, JR., geologist, has been transferred by the Texas Co. from its Panhandle office to Fort Worth, Tex.

W. T. HOLLIDAY, president of the Standard Oil Co., Cleveland, Ohio, has been named chairman of the National Association of Manufacturers' committee on study of depression; W. S. FARISH, president of the Standard Oil Co. of New Jersey, vice chairman of the committee on national defense and industrial mobilization; J. HOWARD PEW, president of the Sun Oil Co., vice chairman of the committee on patents and trademarks; GEORGE W. GUTH, manager of the annuity and insurance department, Socony-Vacuum Oil Co., Inc., vice chairman of the committee on economic security.

AL BUCHANAN, San Antonio drilling contractor and producer, is arranging details of the spring meeting of the Southwestern district American Petroleum Institute, Division of Production, to be held in that city March 16 and 17. E. P. HUBBARD, with the Gulf Oil Corp. in Houston, is program chairman.

LON A. SMITH, JERRY SADLER, and COL. E. O. THOMPSON, comprising the Texas Railroad Commission, will attend the annual Chamber of Commerce banquet in Henderson, Tex., March 10. Mr. Smith is a native of Rusk County. Dr. E. P. SCHOCH, head of the department of industrial chemistry at the University of Texas, will deliver the main address.

JUDGE R. H. HUDSON, for 17 years general attorney for the Phillips Petroleum Co., last week was made counsel to the legal department, which has been divided into two operating sections. RAYBURN L. FOSTER, formerly assistant general attorney in Bartlesville, and R. B. F. HUMMER, formerly in charge of the Oklahoma City legal division, were made general attorneys, in charge of the legal department. This reorganization was made necessary because of the increasing size of the Phillips legal staff, which now consists of 30 staff attorneys in the Bartlesville, Okla., office and seven branch law offices in the Phillips operating territory.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

Louis A. Brenneman, of Titusville, Pa., prominent eastern oil producer, dies in Mercy Hospital in Pittsburgh.

For the first time in Oklahoma's oil history production exceeds 200,000 bbls. per day. It was 202,500 bbls. per day as an average for the past week.

20 YEARS AGO

Drilling in wildcat territory in Texas comes high, the cost being $6 per foot, rig, fuel, and water furnished by the operator. If there is delay that can be blamed on the operator he is penalized $100 per day.

Petroleum (rock oil) is not the only oil obtained in Oklahoma. Cottonseed oil and peanut oil are also among the state's varied industries.

A "tent hotel" in the lively oil town of Wichita Falls, Tex., heated by gas and lighted by electricity, and with bathing and other toilet facilities, consists of 33 tents 16 by 16 feet in ground dimension, with five beds in each tent for which $1 per night is charged each individual lodger. It is a big success financially.

The Supreme Court of the United States decides that nonresidents of Oklahoma must pay a state income tax on income derived in that state. C. B. Shaffer of Chicago, with large interests in Oklahoma, had contested the state's right to collect a tax of $76,000 assessed against him on one year's income.

10 YEARS AGO

The Sunday shutdown, tried out in the Seminole field of Oklahoma, has proved successful. The fear of water encroachment proved to have been unfounded, and the wells come back on production satisfactorily. It is a conservation measure.

CHARLES W. HONESS, for three years a member of the Kansas geological staff of the Gulf Oil Corp., was transferred last week to the division office in Indianapolis, Ind.

W. A. RICHARDSON, president of the Richardson Petroleum Co., Corpus Christi, Tex., has made a gift of a 20-acre oil lease near Premont, Jim Wells County, to a troop of Boy Scouts at Robstown, Tex. He is one of the troop's sponsors.

DAVID A. LOCKE has organized the Rancho Santa Fe Oil Co. and purchased the service station at Rancho Santa Fe, Calif., which supplies 120 ranch owners. He is a son of George D. Locke, retired vice president of the Barnsdall Oil Co.

CARROLL M. WAGNER, manager of the geological department of the General Petroleum Corp., California subsidiary of Socony-Vacuum Oil Co., has completed 20 years' active service with the company in both domestic and foreign exploration. In 1935 Mr. Wagner was acting manager of foreign producing operations of Socony-Vacuum Oil Co.

E. W. SINCLAIR, president of the Sinclair Refining Co., New York, while in Fort Worth, Tex., on a business mission last week, blamed overproduction of crude in certain districts, excessive output by refineries and unethical marketing practices for the present condition of the petroleum industry. "Burdensome inventories bring about low product prices, which in turn weaken the crude situation."

CARY P. BUTCHER, district geologist for the Tide Water Associated Oil Co. in Midland, Tex., has a new son.

E. I. HANLON, president of Hanlon-Buchanan, Inc., Tulsa, is having a winter holiday in Havana, Cuba.

CHARLES LINEHAN, formerly of Dallas, Tex., has moved, with his family, to Midland, Tex., where Mr. Linehan is to be on the geological staff of the Standard Oil Co. of Texas.

H. W. MATHEWS, petroleum engineer for the Standard Oil Co. of Texas, has been transferred to Midland, succeeding JOE B. BALLANFONTE, who has been assigned to the new state headquarters of the company in Houston, after spending 11 years in West Texas.

CARL F. BARNHART, with Amerada Petroleum Corp. at Hobbs, N. M., has been elected president of the New Mexico Geological Society. He succeeds ED KIMBALL, with the Continental Oil Co. REUEL L. VOSS, with Gulf Oil Corp. at Hobbs, was chosen vice president, and JOHN KELLY, with the state proration office in Hobbs, was named secretary-treasurer.

J. C. HUNTER, Abilene oil man, Friday asked Governor O'Daniel to withdraw his name as the newly appointed chairman of the State Highway Commission. He said his action was due to the sectional controversy concerning his appointment which has risen in the senate. He did not look on the highway department from a sectional viewpoint and believed it ill-advised to have the department embroiled in political controversy.

Knows Several Ways

A man sometimes dips into a varied assortment of callings before he gets started off on the right one. Take Frank H. Dunn, executive vice president of the H. F. Wilcox Oil & Gas Co., for example. He knows several ways of making a living. While still going to school in Adams, Mass., where he was born 45 years ago, he worked in textile mills. Soon after finishing high school he got a job as welder and transformer-winder in the General Electric Co. plant in Pittsfield, Mass. That didn't appeal to him, and he gravitated to Hoboken, N. J., where he went to work in the sapphire department of the Thomas A. Edison Co. When the Life Savers Corp. was formed to tempt a candy-loving world with its line of mints young Dunn entered its service and soon he was in charge of the manufacturing department. In the World War he was in France, an observer on naval bombing planes.

FRANK H. DUNN

Upon his discharge the young man headed for the West. He got a job with Wilcox as roustabout, pipeliner, and warehouseman around Bristow and Mounds, in Oklahoma. In 1923 he was made assistant purchasing agent, in Tulsa. Promotions continued. He became purchasing agent, vice president and assistant to the general manager, vice president in charge of refining, and then, in 1936, executive vice president in charge of the company.

In 1920 Mr. Dunn married Miss Marguerite Siever and they have four children. He plays golf when he gets a chance.

WALTER DAVID, president of the Huber Petroleum Co., Amarillo, Tex., returned March 2 from La Jolla, Calif., where he and his family have been spending the winter months.

FRED A. DAVIES, manager of Bahrein Petroleum Co.'s production department, is scheduled to arrive in New York this month after spending several weeks at Bahrein Island.

SAM F. BOWLBY, chief exploitation engineer for Shell Petroleum Corp., Houston, Tex., was the guest speaker last week before the Petroleum Engineering and Geology Club at Texas A. & M. College, student affiliate branch of the A.I.M.E. His subject was "What a Major Oil Company Expects of Its Petroleum Engineers."

A. L. McCOLL, London, director of the Socony-Vacuum marketing system in Great Britain and Ireland, was guest last Thursday at a luncheon in the Hotel Adolphus, Dallas, Tex., given by E. R. BROWN, vice president of Socony and board chairman of Magnolia Petroleum Co., Socony subsidiary in the Southwest. Mr. McColl, accompanied by his son, ALASTAIR McCOLL spent several days in Dallas.

WALTER R. HAUN, advertising manager of the Lion Oil Refining Co., El Dorado, Ark., has been made Mississippi division sales manager, and C. R. OLSON, sales promotion manager, will assume in addition the duties of advertising manager. W. KING O'LEARY, tire sales manager of the Arkansas division, remains in Little Rock as division sales manager. R. W. REYNOLDS, assistant to the station sales manager in El Dorado, is transferred to Memphis, Tenn., as assistant to the division manager.

SHIFTS: V. S. HOLLINGSWORTH, secretary-treasurer Hollingsworth Gas & Oil Corp., from Ozark, Ark., to Springfield, Mo.; PAUL PUGH, superintendent Benedum-Trees Oil Co., from Rosston, Ark., to Centralia, Ill.; RICHARD C. REESE, production department Magnolia Petroleum Co., from Spottsville, Ky., to Mount Vernon, Ill.; J. S. HENDERSON, superintendent Vernco Oil Co., Inc., from Nevada, Mo., to St. Louis, Mo.; PAUL M. PETERS, engineer the Texas Co., from Electra, Tex., to Crowell, Tex.; J. ELMER THOMAS, producer, from Fort Worth, Tex., to Houston, Tex.; T. J. SULLIVAN, superintendent Gulf Refining Co., from Port Arthur, Tex., to Pittsburgh, Pa.; C. O. GARBRECHT, engineer Talco Asphalt & Refining Co., from Mount Pleasant, Tex., to Fort Worth, Tex.; JAMES A. SMITH, production department Phillips Petroleum Co., from Oklahoma City, Okla., to Rodessa, La.; T. A. HOWELL, secretary and treasurer Cleveland Oil Co., from Eureka, Kans., to Wichita, Kans.; JESSE H. RUSSELL, engineer Oklahoma Pipe Line Co., from Muse, Okla., to Cromwell, Okla.; DEAN SHENDAL, producer, from Vincennes, Ind., to St. Louis, Mo.; G. E. ARNOLD, engineer Aetna Oil Service, from Owensboro, Ky., to Corpus Christi, Tex.; W. M. COATS, landman Ben G. Barnett Co., from Longview, Tex., to Harrisburg, Ill.; JESS TOMBERLIN, president Jess Tomberlin Co., from Mount Vernon, Ill., to Evansville, Ind.; J. F. LOUIS, superintendent Magnolia Petroleum Co., from St. Louis, Okla., to Duncan, Okla.

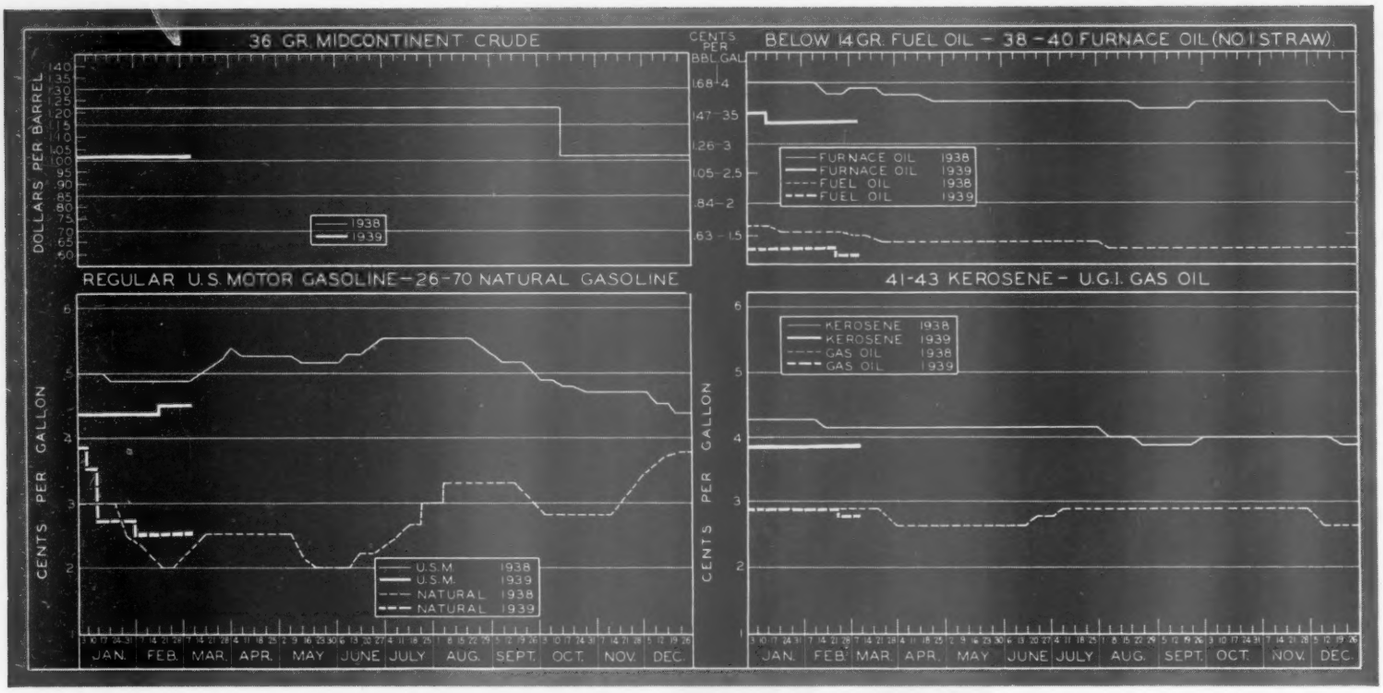
HARRY MACK, for four years general superintendent of the Sunray Oil Co., Tulsa, has been elected a vice president. The statement, published last week, that the position of J. R. Vandever, division superintendent in West Texas and New Mexico, had been changed, was incorrect.

FRANK SCHELL has been made superintendent of Pennsylvania and New York state operations of the South Penn Oil Co., succeeding CHARLES F. STEVENSON, who was recently advanced to the vice presidency. J. L. O'NEIL, in charge of the Oil City district for seven years, has been appointed to Mr. Schell's former position as superintendent of drilling operations in the Bradford field. CLARENCE GRAHAM, formerly in the Pittsburgh district, has been appointed drilling superintendent in the Bradford district.

A. L. LADNER, in the geophysical department of the Texas Co. in Houston, Tex., has resigned to go into business for himself.

NORVAL F. MYERS, manager of refineries, Union Oil Co. of California, Los Angeles, has been appointed a member of the American Petroleum Institute's Division of Refining committee on corrosion of refinery equipment; S. P. PICKETT, Shell Oil Co., Wilmington, Calif., a member of the committee on disposal of refinery wastes; M. ALBERTSON, Shell Petroleum Corp., Houston, Tex., reappointed national chairman of the special study committee on well spacing.

WILL J. REID, ERNEST E. PYLES, C. S. BAILES, GEORGE P. DEANE, J. E. HATCH, and A. C. MALONE were reelected directors of the Hancock Oil Co. at the annual meeting. The company is drilling 75 tideland wells in the Wilmington field and is interested in about the same number being drilled into the Huntington Beach tideland. Mr. Pyles is chairman of the Emergency Executive Committee endeavoring to effect compliance with the new California curtailment program.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Group 3 Market Has Steadier Tone in Spite of Climbing Gasoline Stocks

By T. F. SMILEY

Refiners in the Group 3 area shut their eyes to climbing gasoline stocks this week and allowed themselves to feel good over whatever encouraging conditions might be visible. And there were things to justify a moderate degree of cheerfulness. Gasoline was even firmer than last week, in spite of its increasingly unsatisfactory statistical position nationally. The naturals too, ignoring predictions, were yielding no ground. Heating oils, a subject of uneasiness for weeks, were behaving a little better. Tractors were picking up. Heavy fuels were moving into better ground. Wax was tight.

Consumption Rising

The motor fuel market shook off some of its winter lethargy simultaneously with the removal of the February page from the calendar. Consumption showed unmistakable signs of revival. Low-octane material alone failed to exhibit signs of renewed strength. Efforts of sales managers to pull prices up from profitless levels were meeting with less and less resistance. Important refining companies were among the buyers.

Of the 1,522,000 bbls. added to the country's gasoline stocks in the week ending February 25, 509,000 bbls. was contributed by Mid-Continent refiners. Nevertheless there were no reports of inventories in urgent need of lightening, and there was definite reluctance on the part of many refiners to sell at all at current quotations.

A factor in the firm market for gasoline in Oklahoma was the tightened market in the North Louisiana-Arkansas district. Refiners there were turning away orders. No accumulations of gasoline in either that area or East Texas were reported, and neither was in competition with Oklahoma for the time being.

Natural gasoline exhibited no disposition to run into the decline to which market prophets consigned it several weeks ago. On the contrary, it revealed a little more life than it did a week ago. Jobber demand was more active, and there was a modest rise in domestic refinery orders, attributable in part to the fact that at prevailing prices the stabilized grades are attractive for blending with naphtha or low-octane gasoline for the manufacture of 70- to 72-octane material. More interest is manifested in the lower vapor pressures than in the 26-70 grade. Some 12-pound material is being bought, but there is much more active demand for 18-pound. Export business has been helping to develop the unexpectedly healthy tone of the naturals. Practices change with the passing years, and it is noted that export buyers make their purchases earlier than formerly.

Refined Oil Market Barometer

Ignoring mounting stocks, the gasoline market east of California exhibits a firmer tone generally, apparently on the assumption that extraordinary consumption next summer will absorb them. Refiners with heating oils are eager to dispose of them. Natural gasoline continues to maintain unexpected steadiness. Heavy industrial fuels gaining strength. Wax firm.

MID-CONTINENT. Gasoline stronger. Heating oils soft. Naturals steady. Wax strong.

EAST COAST. Gasoline steadier. Light fuels off. Heavy industrials gaining.

GULF COAST. Gasoline weak. Fuel oils soft. General market quiet.

PENNSYLVANIA. Lubricating oils rising. Wax firm. Gasoline moderately improved.

CALIFORNIA. Gasoline and fuel oils weakened by crude production situation.

CHICAGO. Gasoline bought heavily. Heating oils soft. Kerosene and tractor fuel firmer.

Light Distillates Brisker

Prime white and No. 1 straw were experiencing a brisker market among the light distillates, and range oil was stronger. All these, it was believed were sought, not only for heating purposes, but for conversion into tractor fuels. The concern over unwieldy accumulations of furnace oils in the Mid-Continent was not quite so blue-tinged. It was believed that the high-gravity distillates constitute the major part of this material in storage and that the relief afforded by their use as tractor fuel may go far toward lessening a serious problem. There is no blinking the fact, however, that Mid-Continent refiners are approaching the end of the furnace oil season with burdensome inventories.

Kerosene, reacting to the same influences that improved the light fuels, was somewhat steadier.

Shipments of bright stocks and neutrals were heavy in preparation for the spring business. These shipments offer no assurance that the overproduction and price-cutting which demoralized the market during the past year have been checked. As a matter of fact, inventories, which had been declining, were believed to be rising again.

Gasoline Has Firmer Undertone in East, But Light Fuels Dip

By H. STANLEY NORMAN

NEW YORK, Mar. 7.—A slightly stronger undertone to the motor fuel market was last week's outstanding development in the northeastern territory. This stronger undercurrent was present despite failure of an earlier advance in Buffalo's motor fuel market to withstand the onslaught of price competition.

Comparatively mild weather during the past week or 10 days exerted strong influence on consumption and suppliers on the East Coast are reluctant to bid for business at price concessions although stocks are considered above normal for this season. The hesitancy to drop prices lower is intimately linked with the April 1 opening of the New York World's Fair, which is expected to stimulate consumption of motor fuel by several percentage points above normal for that month and duration of the summer. An advance of a quarter of a cent per gallon in the consumer tankcar market and a cent per gallon in the dealer tank-wagon price at Buffalo in the middle of February could not be sustained. Consequently, Socony-Vacuum Oil Co., Inc., dropped back to the old level of 12 cents per gallon tankcar and 12.5 cents per gallon in the dealer tank-wagon market effective March 1. The tank-wagon dealer price at Syracuse was raised a half cent per gallon to 14 cents on February 28 and that at Boston was lowered .3 cent per gallon to 12 cents on the same date. The tankcar market in New York and vicinity was reported slightly stronger in that suppliers willing to make deliveries at the low of the range appear to be diminishing. The range currently on 65-octane motor fuel appears to be from 5¾ to 6 cents per gallon with most of the business probably falling at 5⅞ cents. Reports are current that barge deliveries may be arranged in certain directions at 5⅝ cents per gallon in the New York Harbor vicinity, but this appears to be the absolute minimum and only a minority of suppliers are willing to accept business at this figure.

There has been another dip in tanker charter rates from the Gulf Coast to north of Hatteras, consequently the firm position of the motor fuel market may be interpreted as actually a slight advance. At least two clean tankers were chartered last week for April loading on the Gulf Coast and delivery north of Hatteras at 14½ cents, a rate which is 3 to 3½ cents per barrel below that last reported in February. Nine American tankers were reported in New York last week "tied up" due to lack of business and probably also due to the current low figure at which fixtures are being arranged.

Light fuel oils in the Boston and Providence districts were unable longer to resist the pressure applied since temperatures moderated in the last two weeks of February. Competitive conditions have been disturbing in both New England points for several weeks—in fact throughout the winter. Socony-Vacuum Oil Co., Inc., yielded to the price pressure last week and lowered tank-wagon prices on No. 2 fuel oil a quarter of a cent per gallon and dipped tankcar quotations an eighth of a cent. The new Socony-Vacuum quotation on No. 2 fuel oil at both Boston and Providence is 3⅞ cents per gallon in tankcars and 5¾ cents per gallon in tank-wagons.

The light burning oil situation was unchanged in New York from the preceding week, but prices here are now approximately the same as applying in the New England territory. Some sellers continue asking 6 cents per gallon for No. 2 fuel oil in the tank-wagon trade of outlying districts such as Westchester County and parts of Long Island. However, nearer the heart of New York most consumers are able to locate No. 2 fuel oil at 5⅞ down to 5⅝ cents per gallon without difficulty.

Industrial fuel oils are slightly stronger on the Gulf Coast, according to reports in trade circles last week. One potential buyer of two cargoes of No. 6 industrial fuel oil reported that he was unable to locate material on a firm bid of 65 cents per barrel. A majority of suppliers seemed unwilling to load heavy fuel oil for coastwise movement at less than 67 cents per barrel and some are asking 70 cents.

The Bunker C fuel oil situation is one of the strong links in the chain of petroleum markets. Demand is holding at a satisfactory rate and the price in New York of 95 cents per barrel has been the most consistent of all quotations during the past few months. Bulk quotations on Bunker C fuel oil on the Gulf appear to range from 67 to 70 cents per barrel, depending on specifications.

Reports are at best incomplete, but the scattered preliminary figures at hand indicate that February demand for motor fuel registered a satisfactory increase over the same month a year ago. Part of the improved demand was doubtless a reflection of the Pacific Coast motoring accompanying opening there last week of the Golden Gate Exposition at San Francisco. Despite the improved consumption in February and an anticipated or forecast increase of 4 per cent in March demand over 1938, refinery stocks of motor fuel continue to climb and each week are growing more and more topheavy in relation to the sound economic level of 81,000,000 to 83,000,000 bbls. estimated at the start of the year by various economists. Additions to stocks during the last week in February were at a lower rate than had prevailed for the preceding month, but the increase of approximately 1,522,000 bbls. is just that much more that the industry must adjust later in the year, if the economic goals are to be approached.

Shipment of lubricating oils against jobber contracts from the western Pennsylvania refining district continue at a satisfactory rate for this season of the year. Some grades of neutral oils have been advanced a half cent per gallon in the past week and quotations for bright stock are still gaining in the low of the range. Neutral of 25 pour test, 200 viscosity is generally offered at 15½ to 16 cents per gallon while the 150 material is quoted at a range of 13½ to 14 cents. Wax was reported unchanged as were most of the other products in the Pennsylvania district, including fuel oil, kerosene and motor fuel.

Low-octane motor fuel was offered more freely at prices a shade below those prevailing in the preceding week by several Gulf Coast refiners. Some suppliers were reported offering 65-octane motor fuel on the Gulf Coast for northern shipment at 4⅜ cents per gallon, which is off an eighth of a cent compared to low of the price bracket in the preceding week. Several refiners, however, continue to quote 4¾ cents per gallon on 65-octane motor fuel and the resistance may prove sufficient to prevent a general break in the market until the upswing in consumption is definitely launched the first of next month. Motor fuel of lower octane rating was reported off an eighth of a cent at 4⅛ cents in certain directions, but for the most part 68- and 70-octane material

(Continued on Next Page)

A. P. I. Weekly Refinery Statistics

Week Ending March 4, 1939

	Capacity reporting (per cent)	Daily crude runs (bbls.)	Total gasoline stocks	Gas oil and fuel oil stocks
East Coast	100.0	529,000	19,836,000	8,583,000
Appalachian	85.9	114,000	3,425,000	741,000
Indiana, Illinois, and Kentucky	89.5	446,000	14,835,000	5,586,000
Oklahoma, Kansas, and Missouri	81.6	233,000	8,243,000	4,064,000
Inland Texas	50.3	106,000	1,958,000	1,844,000
Texas Gulf	89.5	813,000	11,176,000	7,418,000
Louisiana Gulf	97.3	110,000	2,803,000	1,393,000
North Louisiana and Arkansas	55.0	35,000	493,000	804,000
Rocky Mountains	54.2	34,000	1,812,000	724,000
California	90.0	456,000	15,688,000	97,773,000
Total reported	85.8	2,876,000	80,269,000	128,930,000
Estimated unreported	.....	354,000	5,110,000	3,000,000
*Estimated total	.....	3,230,000	85,379,000	131,930,000
*Estimated total previous week	.....	3,185,000	84,597,000	133,671,000
*March 5, 1938	.....	3,093,000	92,285,000	121,288,000

*Bureau of Mines, currently estimated.

Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATES)

Week ending February 18, 1939	272,052,000 barrels
Week ending February 11, 1939	271,553,000 barrels
Week ending February 19, 1938	305,219,000 brarels

Figures do not include stocks of heavy, unrefinable California crude.

Retail Oil Markets

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of March 7, 1939

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county, and city taxes. The gasoline is the regular or standard grade. In most areas lower grades and a premium grade also are available.

Standard Oil Co. (Indiana)

	Gasoline			Kero.
	Tank-wag.	Dlr.	Inc. tax	tank-wag.
Chicago, Ill.	15.1	12.1	4.0	10.0
Decatur	15.1	12.6	4.0	10.0
Joliet	15.1	12.6	4.0	10.0
Peoria	15.1	13.1	4.0	10.0
Quincy	14.9	12.9	4.0	8.7
Davenport, Ia.	15.1	13.6	4.0	†10.0
Des Moines	14.9	13.4	4.0	‡9.8
Mason City	15.3	13.8	4.0	‡10.2
Duluth, Minn.	16.9	15.4	5.0	10.8
Mankato	16.5	15.0	5.0	8.9
Minneapolis	16.0	14.5	5.0	10.4
LaCrosse, Wis.	16.5	15.0	5.0	10.4
Green Bay	16.9	15.0	5.0	10.3
Milwaukee	14.9	13.4	5.0	10.2
Detroit, Mich.	13.1	11.6	4.0	7.1
Grand Rapids	14.0	12.5	4.0	9.7
Saginaw	15.8	14.3	4.0	9.3
Evansville, Ind.	16.6	15.1	5.0	†10.5
Indianapolis	16.8	15.3	5.0	†10.0
South Bend	17.1	15.6	5.0	†9.0
Fargo, N. D.	16.7	15.2	4.0	11.6
Minot	18.0	16.5	4.0	12.9
Huron, S. D.	17.0	15.5	5.0	10.9
Kans. City, Mo.*	14.4	11.9	4.0	7.5
St. Louis*	14.2	12.7	4.0	8.0
St. Joseph	14.4	11.2	4.0	9.3
Wichita, Kans.	13.9	10.6	4.0	7.3

*State tax 2 cents, 1-cent city tax and 1-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gallons or more, 1.5 cents off; minimum delivery 25 gallons.

Stanolex Fuel Oil in Chicago

Effective February 15, 1939, f.o.b. Chicago tank-wagon prices: Standard range oil, 1-99 gallons, 9 cents; 100-149 gallons, 8 cents; 150 gallons and over, 7.5 cents. Stanolex fuel oil No. 1, 1-149 gallons, 8.25 cents; 150-399 gallons, 7.25 cents; 400 gallons and over, 6.75 cents. Stanolex furnace oil, 1-149 gallons, 8.25 cents; 150-399 gallons, 7.25 cents; 400 gallons and over, 6.75 cents. Stanolex Grade A, 1-399 gallons, 5 cents; 400 gallons and over, 4 cents. Stanolex Grade B, 1-799 gallons, 4.75 cents; 800 gallons and over, 3.75 cents.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline			Kero.
	Tank-wag. con'r.	Di-vided dlr.	Inc. tax	tank-wag.
Ohio points	16.0	15.0	5.0	*13.0

*Includes state tax of 1 cent.

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline			Kero.
	Cons'r tank-wag.	Net dlr.	Inc. tax	tank-wag.
Atlanta, Ga.	18.5	15.5	7.0	8.5
Augusta	19.5	16.5	7.0	9.0
Macon	18.0	15.0	7.0	10.0
Savannah	17.5	14.5	7.0	8.0
Birmingham, Ala.	20.0	17.0	8.0	8.5
Mobile	21.0	18.0	9.0	8.5
Montgomery	21.0	19.0	9.0	10.5
Jackson, Miss.	17.5	14.5	7.0	9.5
Vicksburg	19.0	16.0	7.0	9.0
Jacksonville, Fla.	20.0	17.0	8.0	8.0
Miami	18.5	15.5	8.0	8.0
Pensacola	21.0	18.0	9.0	8.0
Tampa	19.0	16.0	8.0	8.0
Lexington, Ky.	19.0	16.0	6.0	10.0
Covington	17.5	14.5	6.0	9.5
Louisville	17.5	14.5	6.0	9.0
Paducah	18.5	15.5	6.0	9.0

Price basis to tank-wagon consumers: Effective January 4, 1937; 3 cents per gallon below tank-wagon price. Effective June 4, 1938, 2 cents per gallon discount eliminated from all kerosene markets in Mississippi, Alabama, Georgia, and Florida, markets being reduced correspondingly to a net basis.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola, Fla., has a city gasoline tax of 1 cent.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline			Kero.
	Cons. tank-car	Dlr. tank-wag.	Inc. tax	tank-wag.
Atl'tic City, N. J.	10.9	12.7	4.0	8.0
Newark	10.9	12.7	4.0	8.0
Annapolis, Md.	12.85	14.35	5.0	9.5
Baltimore	12.25	13.75	5.0	8.5
Cumberland	13.65	16.15	5.0	10.0
Wash'gton, D. C.	10.50	12.0	3.0	9.5
Danville, Va.	14.45	16.95	6.0	12.9
Norfolk	13.25	15.75	6.0	11.5
Petersburg	13.55	16.05	6.0	11.7
Richmond	13.55	16.05	6.0	8.7
Roanoke	14.75	17.25	6.0	11.0
Charles'n, W. Va.	14.05	16.55	6.0	12.6
Parkersburg	13.35	14.85	6.0	11.2
Wheeling	14.35	15.75	6.0	12.2
Charlotte, N. C.	15.65	18.15	7.0	12.1
Hickory	16.15	18.65	7.0	12.5
Mt. Airy	15.95	18.45	7.0	12.3
Raleigh	15.25	17.75	7.0	11.6
Salisbury	15.75	18.25	7.0	12.2
Charleston, S. C.	14.25	16.75	7.0	10.6
Columbia	15.25	17.75	7.0	11.6
Spartanburg	15.95	18.45	7.0	12.4

Price basis to Essolene undivided dealers: Dealer tank-wagon price less .5 cent per gallon. Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at a time by hose connection, on yearly purchases: From 2,500 to 100,000 gallons, consumer tank-wagon price at time and place of delivery; 100,000 gallons per year, consumer tankcar price plus .5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less .5 cent per gallon.

Effective January 16, 1939, in North Carolina the commercial consumer schedule became as follows: Single deliveries of 50 gallons or more, consumer tank-wagon price. Single deliveries of less than 50 gallons, 4 cents per gallon over consumer tank-wagon price. Generally the posted consumer tank-wagon price will be equivalent to the dealer price, less .5 cent per gallon. The above policy also applies in South Carolina effective January 23, 1939.

Discounts for kerosene, 1 cent off tank-wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except no discount in New Jersey.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline			Kero.
	Tank-wag.	Serv. sta.	Inc. tax	tank-wag.
San Francisco	17.5	18.5	4.0	11.5
Los Angeles	17.0	18.0	4.0	10.0
Fresno, Calif.	18.5	19.5	4.0	12.5
Phoenix, Ariz.	21.5	22.5	6.0	*17.5
Reno, Nev.	20.5	21.5	5.0	13.5
Portland, Ore.	20.0	21.0	6.0	13.5
Seattle, Wash.	20.0	21.0	6.0	13.5
Spokane	23.0	24.0	6.0	16.5
Tacoma	20.0	21.0	6.0	13.5

*Includes 5-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents; to split dealers, 2 cents. To commercial consumers: On tank-wagon price; on single deliveries of 40 gallons and over, advance quantity discount extended at time of delivery, 3 cents. Service station schedule applies on single deliveries less than 40 gallons. On kerosene in tankcar, transport truck and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank-wagon.

Pennsylvania, Delaware, and Part of New England

ATLANTIC REFINING CO.

	Gasoline			Kero.
	Cons. tank-car	Dlr. tank-wag.	Inc. tax	tank-wag.
Philadelphia, Pa.	12.0	13.0	5.0	10.0
Pittsburgh	13.0	15.0	5.0	10.5
Allentown	12.75	14.25	5.0	10.5
Erie	13.0	14.5	5.0	10.0
Scranton	13.0	14.5	5.0	10.5
Altoona	13.0	15.0	5.0	10.5
Dover, Del.	...	13.5	5.0	10.5
Wilmington	...	12.5	5.0	9.75

Price basis to undivided dealers, dealer tank-wagon price less .5 cent per gallon. Price basis to commercial consumers in Pennsylvania and Delaware, effective March 11, 1937: Consumers under contract using 100,000 gallons or more per year full compartment hose deliveries, tankcar plus .5 cent. Consumers under contract using less than 100,000 gallons per year compartment hose deliveries, undivided dealer price. Consumers under contract less than full compartment delivery, consumers not under contract, less than full compartment delivery, and consumers not under contract full compartment delivery, divided dealer price. Less than 25 gallons, tank-wagon delivery, 4 cents per gallon above undivided dealer price.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline			Kero.
	Cons. tank-car	Dlr. tank-wag.	Inc. tax	tank-wag.
Albany	11.5	13.8	5.0	8.0
*Met. N. Y.:				
Manhat., Bronx	11.5	12.9	5.0	8.0
Staten Island	11.5	12.9	5.0	8.0
Queens, Br'klyn	11.5	12.9	5.0	8.0
Buffalo	12.0	12.5	5.0	7.5
Rochester	12.5	13.5	5.0	7.5
Syracuse	12.0	14.0	5.0	8.5
Boston, Mass.	10.25	12.0	4.0	7.0
Portland, Me.	11.5	13.5	5.0	7.5
Manchester, N. H.	12.1	14.1	5.0	8.0
Burlington, Vt.	12.0	14.2	5.0	9.0
Springfield, Mass.	10.75	12.8	4.0	7.5
Worcester	10.75	12.8	4.0	7.5
Hartford, Conn.	10.75	12.8	4.0	6.5
New Haven	10.75	11.5	4.0	6.0
Providence, R. I.	10.25	12.3	4.0	7.0

*Does not include 2 per cent city sales tax which is calculated on basis of net retail price exclusive of state and federal taxes. Metropolitan New York prices are undivided dealer prices; others are split dealer.

Price basis to undivided dealer: Posted dealer tank-wagon price less .5 cent. Price basis to commercial consumer: Effective Nov. 15, 1936, monthly purchases of 25,000 gallons and over, consumer tankcar prices at delivery point plus .5 cent per gallon; monthly purchases of 5,000 to 25,000 gallons, undivided dealer price at delivery point; monthly purchases under 5,000 gallons, pay divided dealer tank-wagon prices at delivery point.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline		Kero.
	Dealer	Inc. tax	tank-wag.
Denver, Colo	15.0	5.0	11.5
Grand Junction	16.0	5.0	15.0
Pueblo	13.0	5.0	10.5
Casper, Wyo.	17.0	5.0	11.5
Cheyenne	15.0	5.0	13.0
Billings, Mont.	18.0	6.0	13.0
Butte	19.5	6.0	15.5
Great Falls	18.0	6.0	15.5
Helena	19.0	6.0	15.5
Salt Lake City, Utah	16.0	5.0	16.0
Boise, Idaho	19.0	6.0	18.0
Twin Falls	19.5	6.0	18.0
Albuquerque, N. M.	16.0	*6.5	10.0

*Includes city tax of .5 cent.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline			Kero.
	Cons. tank-car	Dlr. tank-wag.	Inc. tax	tank-wag.
New Orleans, La.	16.75	19.25	*10.0	†11.0
Baton Rouge	14.75	17.25	8.0	‡10.5
Alexandria	14.75	17.25	8.0	‡12.5
Lafayette	15.00	17.50	8.0	‡12.5
Lake Charles	14.75	17.25	8.0	‡12.5
Shreveport	13.50	16.00	8.0	‡11.0
Knoxville, Tenn.	18.00	20.50	8.0	14.5
Memphis	16.00	18.50	8.0	12.5
Chattanooga	17.50	19.00	8.0	14.0
Nashville	17.00	19.50	8.0	12.0
Bristol	18.25	15.25	8.0	14.5

Essolene at dealer price less .5 cent per gallon to undivided dealers.

*Includes 2-cent parish tax. †Includes 1-cent parish tax and 1-cent state tax. ‡Includes 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gallons or more in one territory take posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less .5 cent per gallon. Kerosene prices include 1-cent state tax.

Effective February 24, 1939, the company reestablished in New Orleans the commercial consumer policy on motor fuel effective in the rest of the state.

Effective December 12, 1938, the company revised its commercial consumer policy on motor fuel in New Orleans, as follows: Single deliveries of less than 50 gallons, consumer tankcar plus 2 cents per gallon; 50 to 199 gallons, consumer tankcar plus 1 cent per gallon; 200 gallons and over, consumer tankcar plus .5 cent per gallon.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline			Kero.
	Tank-wag.	Dlr.	Inc. tax	tank-wag.
Omaha	17.5	14.5	6.0	10.3
McCook	17.5	15.5	6.0	10.0
Norfolk	17.9	14.9	6.0	10.7
North Platte	18.3	15.4	6.0	11.0
Scottsbluff	17.0	14.9	6.0	11.2

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective January 1, 1935.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline		Kero.
	Dealer	Inc. tax	tank-wag.
Texarkana, Ark.	12.0	5.0	8.0
Fort Smith	13.25	5.0	7.5
Little Rock	16.75	7.5	8.0
Muskogee, Okla.	13.0	5.0	7.9
Oklahoma City	10.5	5.0	6.0
Tulsa	10.0	5.0	6.0

Texas

	Gasoline			Kero.
	Tank-wag.	Serv. sta.	Inc. tax	tank-wag.
Dallas, Tex.	11.0	15.0	5.0	7.0
Fort Worth	11.0	15.0	5.0	8.0
Houston	13.0	17.0	5.0	8.0
San Antonio	14.0	18.0	5.0	8.0

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank-wagon*
Oleum spirits	15.7
V.M.&P. naphtha	16.0
Cleaners' naphtha	15.0
Stanisol	15.0

*Prices include 3-cent Illinois tax but not 1-cent federal tax or 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gallon lots if covered by contract.

Canada*

3-Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Tank-wag.	Inc. tax	Kero. tank-wag.
Halifax, N. S.	23.5	10.0	17.5
St. John, N. B.	23.5	10.0	17.5
Montreal, Que.	20.0	6.0	14.5
Toronto, Ont.	21.0	6.0	15.5
Hamilton, Ont.	21.0	6.0	15.5
Winnipeg, Man.	26.5	7.0	20.5
Brandon, Man.	28.1	7.0	22.9
Regina, Sask.	26.0	7.0	22.0
Saskatoon, Sask.	28.3	7.0	24.9
Edmonton, Alta.	26.5	7.0	21.5
Calgary, Alta.	23.5	7.0	19.0
Vancouver, B. C.	23.0	7.0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon prices. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon price.

Tank-Wagon Changes

Continental Oil Co. February 24 reduced tank-wagon kerosene 1 cent in Little Rock.

Socony-Vacuum Oil Co. February 28 advanced dealer tank-wagon gasoline .5 cent in Syracuse and reduced dealer tank-wagon gasoline .3 cent in Boston; March 1, reduced consumer tankcar gasoline .25 cent and dealer tank-wagon gasoline 1 cent in Buffalo.

New York Market

(Continued from Preceding Page)

was unchanged at ranges of 4¾ to 5⅛ cents per gallon.

Export interest on the Gulf Coast is only moderately active and no new sales were reported last week. Suppliers are offering low Diesel index gas oil at 3¼ to 3½ cents per gallon. The low of the market range for gas oil of low Diesel index was reported offered only in one direction.

Prices of Refined Products

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of March 7, 1939

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents a gallon on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
62 octane and below	.03½	.03⅝
63-66 octane	.04	.04⅛
67-69 octane	.04⅛	.04⅜
70-72 octane (regular)	.04½	.04⅝
60-62 400 grades:		
62 octane and below	.03½	.03⅝
63-66 octane	.04	.04⅛
67-69 octane	.04⅛	.04⅜
70-72 octane (regular)	.04½	.04⅝
64-66 375	.04	.04¼
68-70 360	.05	.05¼

NORTH TEXAS—

U. S. Motor grades:		
62 octane and below	.03½	.03⅝
63-66 octane	.04	.04⅛
67-69 octane	.04⅛	.04⅜
70-72 octane (regular)	.04½	.04⅝
60-62 400	.03½	.03⅝
64-66 375	.04	.04¼

NORTH LOUISIANA (Ark. and N. La. delivery)—

U. S. Motor grades:		
62 octane and below	.04	.04¼
63-66 octane	.04¼	.04½
67-69 octane	.04½	.04¾
70-72 octane (regular)	.04⅞	.05⅛

ARKANSAS (Ark. and N. La. del.)—

U. S. Motor grades:		
62 octane and below		.04
67-69 octane	.05	.05⅛

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
62 octane and below	.03⅝	.03⅞
63-66 octane	.03⅞	.04⅛
67-69 octane	.04⅛	.04⅜
70-72 octane	.04⅜	.04⅝
60-62 400 grades:		
62 octane and below	.03⅝	.03⅞
63-66 octane	.03⅞	.04⅛
67-69 octane	.04⅛	.04⅜
70-72 octane	.04⅜	.04⅝
64-66 375	.04	.04¼
68-70 360	.05	.05¼

PENNSYLVANIA (inland refineries)—

58-60 U. S. Motor:		
Below 60 octane	.04¼	.04¾
65 octane		.06¼
68-70 octane		.06½

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.06	.08
58-60 400, 65 oct. and higher	.07½	.09

EAST COAST (domestic)—

U. S. Motor, 65 and above:		
*New York (Bayonne)	.06	.06¼
Philadelphia	.06	.06¼
Baltimore	.06	.06¼
Charleston, S. C.	.06½	.06¾

*All grades of gasoline one-eighth to one-fourth cent less for barge shipments. New York Harbor prices are for New York and New England delivery. Prices for New Jersey delivery one-fourth cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
Below 60 octane		.04¼
60-64.9	.04½	.04⅝
65 octane and higher		.04⅝
68-70	.04⅞	.05⅛

Naphtha

PENNSYLVANIA (inland refineries)—

52-56 450 (blending)	.04¼	.04½

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.02½
Grade 18-55		.03

NORTH TEXAS—

Grade 26-70	.02⅜	.02½
Grade 18-55	.02¾	.02⅞

CALIFORNIA—

75-85 375-390	.06½	.07

NORTH LOUISIANA (Ark. and N. La. delivery)—

Grade 26-70		.02¾

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 i.b.p., 110-flash, 540-550 e.p.	.03¾	.03⅞
41-43 gr., 300-320 i.b.p., 110-125 flash, 500-520 e.p.	.04	.04¼
46-48 gr., 210-230 i.b.p., 480-max., e.p.	.04⅜	.04⅝

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.03⅞	.04
42-44	.04⅛	.04¼

NORTH TEXAS—

41-43	.04	.04⅛

NORTH LOUISIANA (Ark. and N. La. delivery)—

41-43	.04	.04⅜

ARKANSAS (Ark. and N. La. del.)—

41-43		.04½

PENNSYLVANIA (inland refineries)—

45	.05	.05⅛
46	.05⅛	.05¼
47	.05¼	.05⅜

CHICAGO (Based on Group 3)—

41-43	.03⅞	.04½
42-44	.04½	.04⅝

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.04¾	.05¾

NEW YORK (Bayonne, N. J.)—

41-43	.04⅝	.04⅞

***GULF COAST (domestic)—**

41-43	.03⅞	.04⅛

*Barge price one-eighth cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil		.03¾
No. 1 prime white, 38-42	.03½	.03⅝
No. 1 straw, 38-40	.03⅜	.03½
No. 2 straw, 32-36	.03¼	.03⅜
No. 2 dark, 32-36	.03⅛	.03¼
No. 3 zero to 15, 28-32	.03	.03¼
No. 3, 15 and above, 28-32	.02¾	.02⅞

NORTH TEXAS—

No. 1 prime white, 38-42	.03½	.03⅝
No. 1 straw, 38-40	.03⅜	.03½

NORTH LOUISIANA (Ark. and N. La. delivery)—

No. 2, 32-36	.03¾	.03⅝

ARKANSAS (Ark. and N. La. del.)—

No. 2, 32-36		.03⅝

CHICAGO (Based on Group 3)—

Range oil	.03⅝	.03¾
No. 1 prime white, 38-40	.03½	.03⅝
No. 1 straw, 38-40	.03⅜	.03½
No. 2 straw, 32-36	.03¼	.03⅜
No. 2 dark, 32-36	.03⅛	.03¼
No. 3, zero to 15, 28-32	.03	.03⅛
No. 3, 15 and above, 28-32	.02¾	.02⅞

NEW YORK (Bayonne, N. J.)—

*No. 1	.04½	.04⅝
*No. 2		.04
*No. 4		.04

*Barge deliveries one-eighth to one-fourth cent under above tankcar price.

Gas Oil and Fuel Oil

(Gas oil per gal., fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil	.02¾	.02⅞
No. 4, low pourpoint, 24-28	1.00	1.10
No. 4, 15 and above, 24-28	.85	.90
No. 5, low pourpoint, 18-22	.70	.75
Below 14 fuel oil, industrial	.45	.55

NORTH TEXAS—

U.G.I. gas oil	.02¾	.02⅞
No. 4, low pourpoint, 24-28	1.00	1.10
No. 5, low pourpoint, 18-22	.70	.75
Below 14 fuel oil, industrial	.45	.55

NORTH LOUISIANA (Ark. and N. La. delivery)—

10-14 fuel oil, industrial	.70	.75

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02⅝	.02⅞
No. 4, low pourpoint, 24-28	1.00	1.10
No. 4, 15 and above, 24-28	.85	.95
No. 5, low pourpoint, 18-22	.70	.80
No. 5, 15 and above, 18-22	.60	.70
No. 6, low pourpoint, 10-16	.60	.70
No. 6, 15 and above, 10-16	.35	.45

PENNSYLVANIA (inland refineries)—

36-40	.04¼	.04⅝

CALIFORNIA—

Los Angeles:		
30-40 gas oil, per bbl.	1.15	1.35
24 plus Diesel, per bbl.	1.00	1.30
24 plus Diesel (bunkers)	1.15	1.50
12-16 (bunkers at tidewater)	.75	.90
10-16 (cargo lots)	.60	.80
12-17 (tankcars)	.50	.80
10-17 (high sulfur)	.45	.70
San Joaquin Valley:		
10-18 (tankcars)	.50	.80
24 plus Diesel, per bbl.	1.15	1.40
San Francisco:		
24 plus Diesel, per bbl.	1.40	1.45
24 plus Diesel (bunkers)	1.45	1.55
10-16 (bunkers)	.90	.95

GULF COAST—

No. 2 fuel	.03⅜	.03⅝
43-47 Diesel	.03½	.03⅝
48-52 Diesel	.03½	.03⅝
53-57 Diesel	.03⅝	.03¾
Bunker C (bulk cargoes)	.67½	.70
Bunker C (bunkers)		.75

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil		.04
28-30 Diesel (lighterage 6¼c per bbl.)		1.65
28-30 Diesel (tankcars)	.04¼	.04½
Bunker C (to ocean-going ships in N. Y. Harbor)		.95
Industrial fuel (tankcars)		.03¼

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

190-200 D, 15-25		.19
150-160 D, 0-10	.14¼	.16
150-160 D, 15-25	.13½	.15½
150-160 E, 15-25	.13	.15
100-110 D, 0-10		.14½
Steam refined:		
631 green (treated)		.12½
600 dark green (untreated)	.04½	.05

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pourpoint	.17½	.19
15 pourpoint	.16½	.18
25 pourpoint	.15	.16
Steam refined:		
600	.08	.08½
650	.09½	.10½
600	.10½	.11½
600 Warren E filtered	.13	.13½

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

150-3		.09
180-3		.10
180-4		.09½
200-3		.10½
200-4		.10
250-3		.11½
250-4		.11
280-3		.12½
280-4		.12
300-6½		.13
400-3½		.14
100-2½ paraffin oil		.06
15-20 pourpoint:		
200-3		.10
200-4		.09½
250-3		.11
250-4		.10½
280-3		.12
280-4		.12½

GULF COAST—

Pale oils:		
200-3	.07	.07¼
300-3	.07½	.07¾
500-3½	.08½	.08¾
750-3½	.08⅝	.09¼
1,200-3½	.09½	.09¾
1,500-4	.09¾	.10
Red oils:		
200-5-6	.07¼	.07½
300-5-6	.07¼	.07½
500-5-6	.08	.08½
750	.08¾	.09
1,200-5-6	.09¼	.09½

CALIFORNIA (moving to dom. market)—

Pale oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11½
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¼	.11½

PENNSYLVANIA—

150 vis. at 70° F., 3 color, 400-405 flash:		
Zero pourpoint	.17½	.18
10 pourpoint	.16½	.17
15 pourpoint	.15½	.16
25 pourpoint	.13½	.14
200 vis. at 70° F., 3 color:		
Zero pourpoint	.18	.19
10 pourpoint	.17	.18
15 pourpoint	.16½	.17
25 pourpoint	.15½	.16

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (a.m.p.) w.c. scale	.0245	.0250

PENNSYLVANIA (inland refineries)—

122-124 (a.m.p.) w.c. scale	.0245	.0250
124-126 (a.m.p.) w.c. scale	.0250	.0255

NEW YORK—

Wax in bags fully refined:		
122-125 (a.m.p.) wax		.0350
125-127 (a.m.p.) wax		.0360
128-130 (a.m.p.) wax		.0375
130-132 (a.m.p.) wax		.0435
133-135 (a.m.p.) wax		.0465
135-137 (a.m.p.) wax		.0490
124-126 (a.m.p.) w.s.		.0255
124-126 (a.m.p.) y.s.		.0250
Petrolatum in barrels, carload lots:		
Dark green	.02	.02⅛
Amber	.02⅜	.02½
Extra amber	.02⅝	.02¾
Lily white	.05½	.05¼
Snow white	.06⅛	.06¼
Cream	.04⅛	.04¼

Export Prices

GASOLINE

GULF COAST—

U. S. Motor	.04¼	.04⅜
60-62 400	.04¼	.04⅜
61-63 390	.04⅜	.04⅝
64-66 375	.04½	.04⅝

LOS ANGELES—

U. S. Motor grades:		
55-65 octane	.04½	.04¾
65-69 octane	.04¾	.05
Above 69 octane	.05	.05½

KEROSENE

GULF COAST—

41-43 prime white	.03⅞	.04⅛
41-43 water white	.03⅞	.04⅛

LOS ANGELES—

41-43 water white	.05	.05¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.o.s. in bbls.)—

Cylinder stocks:		
600 Warren E	.15	.15½
600 S.R. unfiltered	.16	.16½
630 S.R. unfiltered	.17	.17½
600 flash, S.R.	.17	.17½
630 flash, S.R.	.20½	.21
Bright stocks:		
8 color	.16¼	.16½

NEUTRAL OIL

200-3 color	.21½	.22
150-3 color	.19½	.20

PARAFFIN WAX

NEW YORK (prices per pound)—

123-125 a.m.p.		.0375
125-127 a.m.p.		.0387
128-130 a.m.p.		.0412
133-135 a.m.p.		.0437
135-137 a.m.p.		.0455
Crude scale:		
124-126 w.s.	.0250	.0255
124-126 y.s.		.0250

Crude Oil Prices

Oklahoma, Kansas, North Central and East Central Texas

East Texas (Oct. 11, 1938)*	$1.10
Van, Tex. (Oct. 11, 1938)*	.93
Talco, Tex. (Oct. 11, 1938)*	.55
Rodessa, Tex.	See gravity schedule
Altus and Tipton†	See note below
Cayuga, Tex. (Feb. 15, 1939)	.68
Clay Creek, Tex.	.85

See North Louisiana gravity schedule Cass and Panola counties, Texas

*Humble Oil & Refining Co. †Gulf Refining Co. Pure Oil Co.'s Van price, 93 cents, effective Oct. 13, 1938.

Altus and Tipton, Okla., starting at below 25 degrees at 71 cents, 2-cent spread to 40 degrees and above at $1.03. East Texas price met by all buyers posting prices. Talco price adopted by Talco Pipe Line on October 11. Cayuga posted by Pan American Production Co. Clay Creek posted by Sun Oil Co.

Southwest Texas

Salt Flat, Darst Creek, Hilbig, Carroll, Clark and Zoboroski (Oct. 11, 1938)*	$ .96
Pettus (Oct. 11, 1938)*	1.29
Flour Bluff (Dec. 3, 1938)*	1.23
Darst Creek (Oct. 12, 1938)†	.96
Darst Creek and Bruner (Oct. 13, 1938)‡	.96
Luling (Oct. 12, 1938)†	.87
Lytton Spings (Oct. 12, 1938)†	.99
Mirando (Oct. 12, 1938)†	
Government Wells (Oct. 13, 1938)	See note below

*Humble Oil & Refining Co. †Magnolia Petroleum Co. Pettus price adopted by Atlantic Crude Oil Purchasing Co. ‡Gulf Refining Co.

Government Wells posted by Sun Oil Co. starts at 20 gravity, 77 cents, 3-cent spread to 24-24.9 at 89 cents.

Gulf Coast

Conroe, Tex. (Oct. 11, 1938)*	$1.27
Black Bayou and White Castle, La. (Oct. 11, 1938)†	See note below
Gibson, La. (Oct. 11, 1938)†	1.04
Garden Island, La. (Oct. 12, 1938)‡	1.24
Lafitte, La. (Oct. 12, 1938)‡	1.04
Cleveland, Tex. (Oct. 12, 1938)¶	1.14
Hardin, Tex. (Oct. 12, 1938)¶	1.02
Tepetate, La. (Oct. 11, 1938)§	1.03
Villa Platte, La. (Oct. 11, 1938)§	1.03
Abbeville, La. (Jan. 1, 1939)§	See note below
Bosco, La. (Dec. 3, 1938)¶	.93
Creole, La. (Oct. 13, 1938)¶	.96
Gueydan, Sweet Lake, and Louise, La. (Oct. 13, 1938)¶	See note below
Vinton, Edgerly, Starks, Hackberry, Tinbalier Bay, Quarantine Bay, and Grand Bay, La. (Oct. 13, 1938)**	
Long Lake, Tex. (Oct. 13, 1938)**	1.08
Segno and Wing (Oct. 13, 1938)**	See note below
Livingston (Oct. 11, 1938)†	1.10
Gibson, La. (Oct. 11, 1938)†	1.04

*Humble Oil & Refining Co. †Shell Petroleum Corp. ‡Texas Co. §Continental Oil Co. ¶Magnolia Petroleum Co. ‖Pure Oil Co. **Gulf Refining Co.

Black Bayou, etc., starts at below 20 degrees at 79 cents; 20-20.9, 81 cents; 21-21.9, 83 cents, then a 3-cent spread to 26-26.9 degrees, 98 cents, and 27 degrees and over $1. Abbeville starts at below 36 degrees, 92 cents, 2-cent spread to 40 degrees and over at $1.02. Gueydan, etc., starts at below 20 degrees, 79 cents, 3-cent spread to 26-26.9 degrees at $1, and 2-cent spread to 40 degrees and over at $1.28. Segno and Wing take Gulf Refining Co.'s Gulf Coast prices. Vinton, Edgerly, etc., schedule starts at below 18 gravity, 76 cents, 2-cent spread to 20-20.9 at 82 cents; then a 3-cent spread to 26-26.9 at $1; then a 2-cent spread to 34 degrees and over at $1.16.

North Louisiana and Arkansas

Smackover, Ark. (Oct. 5, 1938)*	$ .73
Buckner, Magnolia, and Village, Ark. (Oct. 5, 1938)*	See note below
Schuler, Jones sand	See note below
Tullos and Urania	.89
Cotton Valley, La. (distillate) (Dec. 23, 1938)*	1.20
Lisbon, La. (Sept. 19, 1938)	See note below

*Smackover posted by Standard Oil Co. of Louisiana, October 5, 1938; by Magnolia Petroleum Co., October 12; by Gulf Refining Co., October 13; McMillan Refining Co. and Cross Refining Co. met price. Tullos and Urania posted by Hunt Oil Co. and Arkansas Fuel Oil Co.

Schuler Jones sand schedule starts at below 25 degrees, 66 cents, with 2-cent spread to 40 and over at 98 cents; by Lion Oil Refining Co. on October 5, 1938; Schuler light Morgan sand crude takes North Louisiana gravity scale along with El Dorado and Champagnolie; by Lion Oil Refining Co., October 5; Buckner, Magnolia, and Village schedules posted by Standard Oil Co. of Louisiana and Lion Oil Refining Co. on October 5; quote same prices as for Schuler Jones sand crude.

Middle Western States

OHIO OIL CO.
(Effective October 13, 1938)

Lima, Ohio	$ .90
Illinois old fields	1.05
Illinois basin	1.15
Princeton, Ind.	1.05
Western Kentucky	1.10
Greendale, Porter, and Crystal, Mich. (Jan. 6, 1939)*	.92½
Buckeye, Bentley, Edenville, Beaverton, Mich. (Jan. 6, 1939)*	.90
Freeman-Redding, Mich. (Jan. 6, 1939)*	.82
West Branch and Arenac, Mich. (Dec. 13, 1938)*	.70
Allegan (Jan. 6)	.78
Bloomingdale (Dec. 19)	.84
Muskegon	1.00
Sherman, Mich. (Dec. 13, 1938)‡	.82
Eastern Kentucky:	
Big Sandy River†	1.12
Kentucky River†	1.20

*Simrall Corp. †Ashland Refining Co. ‡Pure Transportation Co.

Rocky Mountain States

Dry Creek, Wyo. (Oct. 11, 1938)*	$ .82
Elk Basin, Wyo. (Oct. 11, 1938)*†	.90
Grass Creek, light, Wyo. (Oct. 11, 1938)*†	.90
Grass Creek, heavy (Oct. 11, 1938)†	.40
Lance Creek, Wyo. (Oct. 11, 1938)*	.77
Rock Creek, Wyo. (Oct. 11, 1938)*	1.00
Iles, light, Colo. (Oct. 11, 1938)†	.98
Iles, heavy, Colo. (Oct. 11, 1938)†	.92
Dutton Creek, Wyo. (Oct. 11, 1938)†	See note below
Frannie, light, Wyo. (Oct. 11, 1938)†	.55
Frannie, heavy, Wyo. (Oct. 11, 1938)†	.42
Hamilton dome, Wyo. (Oct. 11, 1938)†	.35
Midway, Wyo. (Oct. 11, 1938)†	See note below
Salt Creek Tensleep crude, Wyo. (Oct. 11, 1938)†	.846
Salt Creek (Oct. 11, 1938)	See note below
Canon City, Colo. (Oct. 11, 1938)‡	.90
Florence, Colo. (Oct. 11, 1938)‡	.90
Cat Creek, Mont. (Oct. 11, 1938)‡	1.10
Big Muddy, Wyo. (Oct. 11, 1938)‡	.98
Lance Creek, Wyo. (Oct. 11, 1938)‡	.77
Lea County, N. M.	See West Texas gravity schedule‡
Artesia, Jackson and Maljamar	See gravity table‡
Fort Collins and Wellington, Colo.	See gravity table‡
Eddy County, N. M. (October 11, 1938)¶	.77

*Ohio Oil Co. †Stanolind Oil & Gas Co. ‡Continental Oil Co. ¶Sinclair Prairie Oil Marketing Co.

Dutton Creek and Salt Creek Tensleep crude start at below 29 degrees, 86 cents, 2 cents spread to 40 and over at $1.10. Salt Creek crude excepting Tensleep, takes Standard Oil Co. of Indiana Oklahoma-Kansas prices. Stanolind Oil & Gas Co., effective October 11, discontinued posting prices in Greybull-Torchlight, Wyo., and Hogback and Hospah, N. M.

Eastern States

SOUTH PENN OIL CO.
(Effective March 6, 1939)

Pennsylvania Grade Oil in National Transit Lines (Bradford field)	$2.00
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	1.65
Pennsylvania Grade Oil in Eureka Pipe Line lines	1.59
Pennsylvania Grade Oil in Buckeye Pipe Line lines	1.55
Corning Grade Oil in Buckeye Pipe Line Co. line (Jan. 24)	1.02

TIDE WATER ASSOCIATED OIL CO. and NEW YORK TRANSIT CO.
(Effective March 6, 1939)

Bradford, Pa.	$2.00
Allegany, N. Y.	2.00

PENNZOIL CO.
(Effective March 6, 1939)

Group A	$1.95
Group B	1.94
Group C	1.93
Group D	1.92
Group E	1.90

PURE OIL CO.
(Effective March 6, 1939)

West Virginia	$1.59

West Texas

See gravity table.	
Pecos County (Oct. 11, 1938)*	$ .78
Pecos shallow (Oct. 11, 1938)†	.85

*Shell Petroleum Corp., Gulf Pipe Line Co. and Humble Oil & Refining Co. †Shell Petroleum Corp.

Canada

Ontario (Oct. 25, 1938)*

Petrolia	$1.90
Oil Springs	1.97

TURNER VALLEY
(January 5, 1938, by Imperial Oil, Ltd.)

Clear naphtha and discolored naphtha, 65 gravity and higher	$2.14
Discolored naphtha and crude oil, 40-40.9 gravity	1.14
Increasing 2 cents for each degree gravity with top price for 64-64.9 gravity	1.62

These prices f.o.b. producers field tankage.

*Imperial Oil, Ltd.

Crude Oil Price Changes

Effective March 6 South Penn Oil Co. raised its prices paid for crude in Pennsylvania and West Virginia 12 cents per barrel and in southeastern Ohio 10 cents per barrel, and Tide Water Associated Oil Co. and New York Transit Co. raised their prices paid in the Allegany, N. Y., and Bradford, Pa., fields 12 cents per barrel. Other purchasers met the prices in the fields in which they buy oil.

Rocky Mountain Runs

Production estimates for the week ended March 4 follows:

	Barrels
WYOMING	
Salt Creek	15,070
Big Muddy	1,260
Badger Basin	180
Cody Dome	70
Cole Creek	110
Dallas Derby	350
Dewey Dome	10
Dutton Creek	40
Elk Basin	580
Frannie	210
Garland	1,900
Grass Creek	1,820
Hidden Dome	90
Hudson	200
LaBarge	900
Lance Creek	12,560
Lost Soldier	1,780
Mahoney	140
Medicine Bow	2,220
Mule Creek	200
Midway	20
Oregon Basin	1,890
Osage	750
Quealy Dome	760
Rex Lake	10
Rock River	2,990
Spindletop	40
Poison Spider	270
Teapot	10
Warm Springs	120
Wertz	1,290
Total Wyoming	47,840
MONTANA	
Border	150
Cat Creek	580
Cut Bank	8,230
Dry Creek	1,350
Kevin-Sunburst	3,490
Lake Basin	20
Pondera	480
Total Montana	14,300
COLORADO	
Florence	210
Fort Collins and Wellington	310
Wilson Creek	350
Iles Dome	2,120
Moffat	160
Orchard	30
Rangely	20
Tow Creek	130
Price	470
Total Colorado	3,800

B. F. Connelly, formerly secretary and treasurer of the Atlas Pipe Line Corp., Shreveport, La., is now associated with the American Locomotive Co. and will reside in New York.

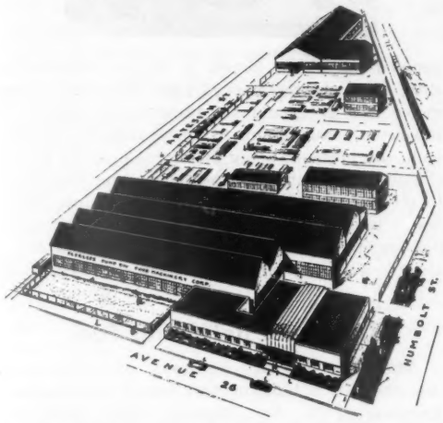
Crude Prices by Gravities

	Oklahoma 1	Oklahoma and Kansas 2	North and Central Texas 3	Louisiana and Arkansas 4	East Central Texas 5	Gray County, Texas 6	Hutchinson and Carson counties, Texas 7	Raccoon Bend, Satsuma and Tomball, Texas 8	West Texas and Lea County, N. M. 9	Fort Collins and Wellington, Colo. 10	Anahuac and Dickinson, Mirando, Duval, Texas. 11	Refugio, Texas 12	Gulf Coast Texas 13	Cass and Panola counties, Texas 14	Beaumont and West Beaumont, Texas 15	Lockport, Iowa, Cameron Meadows, Louisiana 16	Artesia, Jackson and Maljamar, N. M. 17	Iowa, Louisiana 18
Below 18									$.53		$.74	$.79	$.79			$.74		$.75
18-18.9									.53		.74	.79	.79		$.79	.78		.79
19-19.9									.55		.77	.82	.82		.82	.80		.81
20-20.9	$.60	$.70							.57		.80	.85	.85		.85	.82		.83
21-21.9	.63	.72							.59		.83	.88	.88		.88	.85		.86
22-22.9	.66	.74						$.95	.61		.86	.91	.91		.91	.88		.89
23-23.9	.69	.76			$.78			.97	.63		.89	.94	.94		.94	.91		.92
24-24.9	.72	.78	$.71		.80			.99						$.73				
Below 25				$.73					.65		.92	.97	.97	.75	.97	.94		.95
25-25.9	.75	.80	.73	.75	.82			1.01	.67		.95	1.00	1.00	.77	1.00	.97		.98
26-26.9	.78	.82	.75	.77	.84			1.03	.69		.97	1.02	1.02	.79	1.02	.99		1.00
27-27.9	.81	.84	.77	.79	.86			1.05	.71	$.81	.99	1.04	1.04	.81	1.04	1.01	$.61	1.02
28-28.9	.84	.86	.79	.81	.88	$.72	$.67	1.07	.73	.83	1.01	1.06	1.06	.83	1.06	1.03	.63	1.04
29-29.9	.87	.88	.81	.83	.90	.74	.69	1.09										
Below 30									.75	.85	1.03	1.08	1.08	.85	1.08	1.05	.65	1.06
30-30.9	.90	.90	.83	.85	.92	.76	.71	1.11	.77	.87	1.05	1.10	1.10	.87	1.10	1.07	.67	1.08
31-31.9	.92	.92	.85	.87	.94	.78	.73	1.13	.79	.89	1.07	1.12	1.12	.89	1.12	1.09	.69	1.10
32-32.9	.94	.94	.87	.89	.96	.80	.75	1.15	.81	.91	1.09	1.14	1.14	.91	1.14	1.11	.71	1.12
33-33.9	.96	.96	.89	.91	.98	.82	.77	1.17	.83	.93	1.11	1.16	1.16	.93	1.16	1.13	.73	1.14
34-34.9	.98	.98	.91	.93	1.00	.84	.79	1.19										
Below 35									.85	.95	1.13	1.18	1.18	.95	1.18	....	.75	....
35-35.9	1.00	1.00	.93	.95	1.02	.86	.81	1.21	.87	.97	1.15	1.20	1.20	.97	1.20	....	.77	....
36-36.9	1.02	1.02	.95	.97	1.04	.88	.83	1.23	.89	.99	1.17	1.22	1.22	.99	1.22	....	.79	....
37-37.9	1.04	1.04	.97	.99	1.06	.90	.85	1.25	.91	1.01	1.19	1.24	1.24	1.01	1.24	....	.81	....
38-38.9	1.06	1.06	.99	1.01	1.08	.92	.87	1.27	.93	1.03	1.21	1.26	1.26	1.03	1.26	....	.83	....
39-39.9	1.08	1.08	1.01	1.03	1.10	.94	.89	1.29	.95	1.05	1.23	1.28	1.28	1.05	1.28	....	.85	....
40 and over	1.10	1.10	1.03	1.05	1.12	.96	.91	1.31										

New or Improved Equipment

Two New Pumps Will Be Made in Bigger Peerless Factory

Expanding markets and two new pump developments have impelled Peerless Pump Division of Food Machinery Corp., 1902 East Sixty-seventh Street, Los Angeles, Calif., to build a new and larger factory. One new pump is for small-capacity deep-well pumping requirements. The other is a large-capacity, low-lift pump of the type used



by irrigation and drainage districts to handle huge quantities of water up to 100,000 gallons per minute. It is the joint development of Prof. R. G. Folsom, of the University of California, and J. M. Hait, Peerless' chief engineer.

The new plant will give Peerless about five times as much floor area as the old factory buildings, according to Vernon Edler, vice president and general manager, and will permit advanced methods of straight-line production. A new hydraulic testing laboratory will make it possible to run performance tests on pump capacities as high as 75,000 gallons per minute.

Bulletins, Booklets, and Other Literature for the Trade

The Louis Allis Co., Milwaukee, Wis., has prepared a condensed eight-page booklet including general information on N.E.M.A. standards and definitions. This booklet includes suggestions for the proper selection of motors, types of drives, and various types of protected motors; information regarding service factors, rated loads, torques, etc.

A 20-page illustrated booklet obtainable from Anaconda Wire & Cable Co., 25 Broadway, New York, presents information about Anaconda Star ground rod and Everdur ground wire clamps.

Foster Wheeler Corp., 165 Broadway, New York, is sending to those who ask for it a bulletin on stainless-steel bellows, packless expansion joint, designated as Type S.

Oil Well Supply Co. has released two bulletins, one on its 17-inch oil-bath rotary and one on its TC-5 twin-crank pumping unit.

A 36-page booklet explaining the uses, adaptations and developments of all types of geared drives is announced by the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa. The booklet lays emphasis on the petroleum and steel industries. A turbine, in the 100- to 2,000-horsepower range, manufactured for every type of industry using mechanical and electrical power, is described in another booklet released by Westinghouse.

Johnson Bronze Co., New Castle, Pa., has ready for mailing a 72-page catalog of Johnson general-purpose bearings in 800 stock sizes, machine-finished, ready for assembly; 350 sizes of universal bronze cored and solid bars, and 230 sizes of electric motor service bearings.

Henry Vogt Machine Co., Inc., Louisville, Ky., offers a 20-page booklet on the Vogt Class ML-L low-head boiler, including pictures of representative installations.

Beaver Pipe Tools, Inc., Warren, Ohio, has prepared a bulletin on the Beaver Model C, a compact power unit which converts hand tools into a portable pipe and bolt machine.

Bulletin 416, announced by Mason-Neilan Regulator Co., 1190 Adams Street, Boston, Mass., is devoted to Masoneilan direct-connected liquid-level controllers.

An attractive brochure entitled, "The Sun Rises on an Advanced Nixon Surface Control Gas-Lift System," has been issued by Wilson Supply Co., Houston, Tex. It describes certain advancements in the design and operation of the system.

The Continental Supply Co., Dallas, Tex., has published a new bulletin concerning HS series of single-crank geared pumping units, especially adaptable to slow-speed pumping in connection with back-cranking services and for multiple well pumping hookups.

Frick-Reid Announces Changes

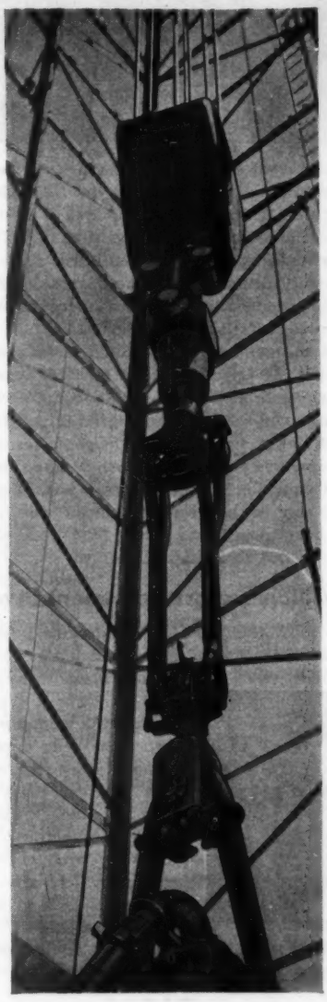
H. L. Wilkins has been appointed general district manager in charge of the Illinois, Indiana, Kentucky, and Michigan districts for Frick-Reid Supply Corp., Tulsa. For several years Mr. Wilkins has been district sales manager for the Central Oklahoma area, and he is well known throughout the Mid-Continent fields. He plans to move from Tulsa to a central point in his territory.

L. R. (Mike) Roberts, formerly salesman in the Seminole area, was promoted to district sales manager of the Central Oklahoma district. Mr. Roberts has been active in the Seminole-Wewoka area for years and will continue to maintain his residence at Wewoka.

H. L. WILKINS *L. R. ROBERTS*

Usual Hook Member Is Absent from Ideal Rotary Connector

Offered for greater operating convenience and flexibility in deep drilling, the DA-30 rotary connector (patented), manufactured by the National Supply Co., replaces the conventional rotary hook.



The distinctive design eliminates the usual hook member and in its place provides a yoke from which elevator links can be independently suspended. Drillpipe is handled in the usual manner, and a special shank, easily attached to the swivel-bail, provides means of carrying the swivel with the regular drillpipe elevator when drilling.

The arrangement of carrying the elevator links independently of each other makes for increased flexibility in handling the elevator when running drillpipe. Vertical suspension of each link also provides a better balance of the loads on the elevator. There is no possibility of the links jumping out of the yoke. Carrying the swivel below the elevator links eliminates the chance of the links bumping against the swivel bail or interfering with the rotary hose.

Forged steel for all the load-carrying parts, 300-ton capacity, two ball bearings for ease of rotation, fully enclosed spring and locking mechanism are some of the more important construction features of this DA-30 connector.

Plane Accident Provides Thrill in O'Connor's Trip Abroad

J. B. O'Connor, vice president and director of sales of Clark Brothers Co., Olean, N. Y., has returned from a two-month trip abroad, during

which he visited the various Clark offices and representatives in Europe and the Near East.

Much of Mr. O'Connor's trip was made by air, and it included one rather exciting flight of 425 miles over water, at night, in a plane after it had lost its radio antennae and had damaged one wing in an accident while landing for refueling at Castelrosso, off the coast of Turkey. The pilots decided the damaged plane could make the final hop safely to Tripoli, so they took off with four passengers—three Englishmen and Mr. O'Connor—and completed the trip, landing in Tripoli Harbor without lights, but with the help of flares.

The picture is from a snapshot taken in Iraq. Mr. O'Connor is at the extreme left, with Mr. Bridgewater, of the Foster Wheeler Corp., London office, next to him.

Wittich Export Representative

Val R. Wittich, Jr., who maintains headquarters for his foreign sales organization at 30 Rockefeller Plaza, New York, and who has a wide acquaintance among the trade, has been appointed export sales representative for Texas Iron Works, Inc., Houston, Tex., manufacturer of oil industry products, chief among which are T-I-W slips, packers and setting tools, bits, safety joints and shale drilling assemblies, and lubricated grief-stem safety valves.

Here and There With Men Who Manufacture Equipment

Pittsburgh Steel Co., Pittsburgh, Pa., has appointed American Pipe & Steel Corp., Los Angeles, exclusive California oil-field distributor for Pittsburgh seamless oil-country tubular goods, including seamless casing, drillpipe, and oil-well tubing.

Walsh Supply Co. has opened a store at 215 North Broadway, Ada, Okla., dealing in new and used oil equipment and rental tools. Leo J. Walsh, manager, formerly was associated with Taubman Supply Co. and Bethlehem Supply Co.

A. C. Stensgaard, salesman, and W. L. Ducker, Jr., chief engineer, for the Bovaird Supply Co., have returned to Tulsa from a trip through Indiana and Illinois introducing the new line of Emsco pumping units for which Bovaird is distributor. The line includes two small sizes adaptable particularly to the Illinois and Indiana territories. George W. Walton, Dallas, Tex., vice president of Emsco Derrick & Equipment Co., accompanied Mr. Stensgaard and Mr. Ducker on the trip.

W. K. Mellon, vice president of Petroleum Rectifying Co. of California, recently returned to his office in Los Angeles from a visit of several weeks at the company's Gulf Coast headquarters in Houston, Tex. Mr. Mellon made side trips with G. B. Hanson and J. F. Thomas of the Houston offices into Arkansas, Louisiana and Oklahoma, where the company has Petreco electromatic desalting plants in service.

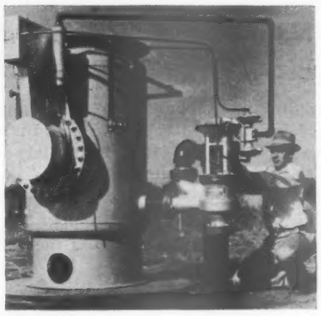
Julio F. Sorzano, industrial sales manager of Wailes Dove-Hermiston Corp. of New York, announces appointment as distributors of Bitumastic protective coatings of Brance-Krachy Co., Houston, Tex.; R. W. Hudgins & Son, Norfolk, Va.; James Walker Co., Baltimore, Md., and Industries Supply Co., San Diego, Calif.

Crane Promotes George W. Hauck

George W. Hauck, a frequent contributor to technical publications on engineering topics, particularly with relation to piping problems, has been made manager of the engineering sales section of the valve and fitting department of Crane Co., Chicago. He has been a member of the Crane organization since 1913. After attending a technical high school and the University of Cincinnati in his native city, Mr. Hauck joined Crane's Cincinnati branch. Following military service in the World War, he returned to the Cincinnati branch as a sales engineer. Mr. Hauck was called to Chicago in 1935 for special work on the Crane No. 52 catalog, after which he was zone representative, covering nine Crane branches in the Middle West, with Cincinnati as his headquarters. Since October, 1937, he has been a department manager at the Chicago works.

Provides Complete, Continuous Record of Well's Production

A device for continuous gauging of well production and for reducing evaporation losses by eliminating routine tank gauging has been de-



veloped by Black, Sivalls & Bryson, Oklahoma City, Okla., in the new B.S.&B. oil meter. The meter is a gauging tank designed to operate at separator pressures up to 125 pounds per square inch, the pressure being maintained on the meter chamber by means of an equalizer line connected to the separator vent gas line. Within the chamber a large, buoyant float is suspended from a ball-bearing-mounted trunnion shaft which actuates the metering valve mechanism with precision.

Left-Hand Releasing Tool

The new Security left-hand releasing tool, described in a bulletin just issued by Security Engineering Co., Inc., Whittier, Calif., offers an improved method of setting oil-well liners and accessories, and is said to assure positive release regardless of the weight placed on the liner or the weight of the liner itself. This operating principle is explained and illustrated in the bulletin, together with descriptions and illustrations of the Security delayed-action packer setting tool and the Security delayed-action lead seal packer, both of which are used in conjunction with the left-hand releasing tool. The delayed-action packer offers important advantages and is available in steel or "Securaloy," the drillable oil-field metal.

AXELSON SALES EXECUTIVES MEET FOR DISCUSSION

Members of Axelson Manufacturing Co.'s California sales force recently met for a two-day session at the main plant in Los Angeles. Under the direction of Alvin Zwerneman, California sales manager, various field services and distribution problems were discussed. Mr. Zwerneman said this meeting was only one of a number scheduled for 1939, all designed to make Axelson's service to the oil operators more complete and far-reaching.

In the picture, beginning at the extreme left and reading around the circle, are Alvin Zwerneman, Ray M. Humphreys, M. Ray Conger, Howard F. Donley, Glynn Williams, Willard F. Goertz, Stanley Morrish, Clinton J. Huyck, Philip E. Humphreys, Howard Cowan, W. Harry Getsinger, William R. Jennings, Edwin F. Green, Milfred J. Parker, Abraham G. Haglund, Clayton E. Rose, Harlan S. Kelley, William H. Jackson, Elmer J. Phillips.

FUTURE LAWS

(Continued from Page 31)

In looking to the future, therefore, I think we may confidently hope and expect that through a painful process such changes, modifications, and adjustments in the law of oil and gas will be made as the necessities of the case may warrant and demand. This is a part of our evolutionary process. We change our laws by evolution and not by revolution. Ordinarily we can overcome inertia and resistance to change, even though this opposition is often determined and unreasonable.

Neither you nor I would be content, however, with such a generalized statement. We should not be satisfied with a mere statement of the abstract principles. I am sure that you expect me to get down to a few cases, at least, so I shall now make the effort. We should bear in mind the fact that some of our presently accepted principles are outmoded in view of existing conditions and should be revised and brought up to date.

Future Amendments

1. We shall consider some problems incident to conservation. . . .

In the future our conservation laws will doubtless be so amended as to insure a more efficient use of reservoir energy by the production of oil with lower gas-oil ratios, by using surplus gas for repressuring purposes, by reinjecting salt water beneath the producing sands in water-driven fields, by the observance of fairer allocation formulas, designed to insure ratable withdrawals throughout a reservoir and by the maintenance of top field allowables so low as not to cause physical waste.

2. We shall now give some thought to the problem of proration. The primary object of proration is to prevent waste by limiting the production from individual wells and fields as a whole to such a figure as will best conserve reservoir energy and limit production to current market demand. Another primary purpose of proration is, theoretically at least, to protect the correlative rights of the various operators. The object should be to permit each operator to produce the equivalent of the recoverable oil in place under his land without requiring him to drill more wells than are reasonably necessary to accomplish this end. Stated in another way, each operator should be required to drill only such number of wells as may be reasonably necessary to enable him to recover the equivalent of the recoverable oil in place underneath his land without waste. Avoidable drainage across property lines which is not compensated for by counter drainage should be avoided.

From the day when the Bass case was decided by the Austin Court of Civil Appeals down to the present, our courts, with more or less consistency (sometimes more and sometimes less) have proclaimed that they adhere to these principles; however, in practice, correlative rights have not been effectually protected.

The marginal well law as construed and applied by the Railroad Commission has often led to physical waste and has been the cause of the rankest sort of inequities. For instance, in East Texas, it has led to the wholesale taking of one man's oil and giving it to another.

The same is true with respect to the administration or maladministration of Rule 37. Rule 37 is designed to procure proper spacing patterns in various fields in Texas. The theory back of Rule 37 is that no more wells should be drilled in a field than are necessary efficiently to recover the oil. Wider spacing under conditions of controlled production has been found to prevent waste as well as to avoid fire hazards and the like. The Railroad Commission inserted in the rule an exception designed to prevent confiscation of property and to prevent waste. It had in mind the situation in which operators may have small tracts with no opportunity to force pooling, whose interests could be protected only by permitting them to drill on their tracts. It also had in mind the fact that in some fields localized conditions may require drilling wells close together in order to prevent waste.

In the actual administration of the rule, however, the commission in many cases has adhered to the exception rather than to the rule with the result that wells are drilled too closely together. Too many wells have been drilled, and top allowables for fields have been placed too high, due to the misconstruction and misapplication of the marginal well law. Proper adjustments have not been made in allowables to afford to each operator a fair opportunity to produce his own oil; and in some fields, notably the East Texas field, many operators who have drilled sufficient wells on their properties to produce their oil without waste have arbitrarily been deprived of the opportunity to produce their fair share of the oil while their neighbors are permitted to produce far in excess of their fair share.

The decisions of our courts with respect to the administration of Rule 37 are in hopeless confusion. Without appearing to be too critical of our Supreme Court. I think it can be fairly said that it has been largely responsible for the confusion. It has denied applications for writs of error in many conflicting cases; and actually, perhaps by its desire to clear its docket, has refused to take jurisdiction and to follow up the forward step and sound position taken in the case of Brown v. Humble.

Let us make bold to predict that in the future the legislature will modify the marginal well law by cutting down the top allowables for marginal wells, and that the Railroad Commission will administer the law as it is written, applying it only to pumping wells which are marginal wells under the statute and not to nonmarginal wells. Let us further hope that our administrative agency in allocating production as between properties will afford real protection to correlative rights, that is, will afford to each operator a fair opportunity to produce his recoverable oil without requiring him to drill unnecessary wells. To require him to drill unnecessary wells is clearly taking his property without compensation and due process of law.

Let us hope that the courts will function in protecting correlative rights and especially that our Supreme Court will not continue to deny applications for writs of error, where it clearly has jurisdiction and where it should take jurisdiction in order to remove conflicts between decisions of the various courts to civil appeals. It is probable that it will be necessary to take one or more cases to the Supreme Court of the United States in order to jar our Texas Supreme Court out of its complacency and to compel it to function in protecting the property rights of citizens.

Doubtless in the near future cases will be decided in which the federal questions involved will be preserved and one or more of such cases in all probability will be taken to the U. S. Supreme Court. There is now pending in the federal court at Austin a case involving the discrimination and confiscation that ensues from failure of the commission to protect correlative rights of a producer in the East Texas field; and it is hoped that that court will give some relief to the aggrieved producer.

3. Let us consider some excrescences in our laws governing lessor-lessee relationships. In view of the Mecom Oil Co. case and the Hanscom case, the law does not now afford any real protection to a lessee who may be compelled to drill on a lease in the face of adverse litigation. Let us remember that the ordinary oil and gas mineral lease in the face of adverse litigation. . . . Let us remember the lessee is often placed between the devil and the deep blue sea. If he does not drill, his lease will expire; if he does drill and loses in the pending litigation, he loses his entire investment. It is unjust and ridiculous to place a lessee in such a position. It is no answer to say that a receiver could be obtained. Anyone who has had any experience whatever with receiverships knows that the appointment of a receiver is one of the most effectual ways of dissipating the value of the property for all concerned.

Correction by Courts

Surely the courts in time will correct such a manifestly wrong interpretation of the law. . . . Since the lessor cannot furnish him safe and quiet possession, the primary term of the lease should obviously be extended by the time involved in such litigation. It is believed that upon principles of fairness and justice the courts ultimately will recognize this to be a correct rule of law.

4. Let us now consider a few questions with respect to taxes. We should bear in mind the fact that an oil and gas mineral lease is a conveyance of an interest in the land. It has repeatedly been held that royalty retained in a lease, whether in kind or otherwise, is an interest in land. Rents, royalties and revenues accruing to the lessor under an oil and gas mineral lease likewise have been held to be an interest in land. Consequently it is only logical that each person owning an interest in the land should pay taxes upon his entire interest, whether that be a leasehold interest, a royalty interest, an interest imposed by an oil payment, an overriding royalty or the possibility of reverter. While there is still some confusion in our cases, it is believed that our courts are rapidly arriving at the point where we may safely say that each interested party will be obliged to pay taxes upon the interest, whatever it may be, that he may hold under an oil and gas lease.

5. Let us turn for a moment to some problems in administrative law. Society is daily becoming more intricate. The functions of government have likewise become complicated. Many believe that this is a necessary consequence of the facts as they exist in our social and economic order. Hundreds of administrative boards, commissions and bureaus have been organized and have commenced to regulate business in a thousand ways. The oil and gas industry has by no means escaped. Indeed, it is the general belief of those within and of most people without the industry that a considerable amount of governmental regulation is absolutely necessary. This is true because operating units in the industry cannot solve their problems cooperatively without running the risk of violating the antitrust laws and because, of all people, oil men seem to be the most individualistic.

There are many lone wolves in the industry. They will not play in accordance with the rules of the game unless they are compelled to do so. There are many in the industry who are pirates by instinct and by practice, as, for instance, the hot oil gentry. If we are to have conservation, and if we are to protect correlative rights through proration and otherwise, it is necessary, therefore, that some governmental agency acting under the police power should to a reasonable extent regulate the industry in the public interest. The administrative agency or agencies to which such regulation and control are entrusted, should proceed in accordance with law. It is important that they should not act capriciously, arbitrarily or unreasonably. Our law imposes safeguards against their doing so. I am afraid that in our zeal to arm our Railroad Commission with power to act, our courts, at least, have gone entirely too far in upholding administrative acts of that body. I am fully mindful of the many difficulties which that agency faces and of the success in general which it has achieved as an administra-

(Continued on Page 135)

CLASSIFIED ADVERTISING

Patent Attorneys

JACK A. SCHLEY
PATENT LAWYER
Patents obtained — infringement practice in all Courts—oil field experience. 1807-11 Tower Petroleum Bldg., Dallas. 2014 Second Nat'l. Bank Bldg., Houston. 707 Insurance Building, San Antonio. 433 Munsey Building, Washington, D. C. Address any of these offices.

PATENTS — TRADE MARKS
All cases submitted given personal attention.
Form **"Evidence of Conception"** with instructions for use and **"Schedule of Government and Attorneys' Fees—FREE**
LANCASTER, ALLWINE & ROMMEL
Patent Law Offices
418 Bowen Bldg., Washington, D. C.

Leases and Drilling Blocks

LEASES—East Texas, La., South Ark. 20 acres up, dollar acre up.—Owners—Address Attorney, Box 1122, Little Rock, Ark.

DRILLING deals wanted 50,000 acres Southern Illinois in and around production area. Elmer Gant, Anna, Illinois.

ILLINOIS 60,000 acres in and near production. Illinois Minerals Company, Cairo, Illinois.

SACRIFICE 40-acre Oil Lease, Chaves County, for only $10.00, full price. Guarantee title. P. O. Box 191, Clovis, N. Mex.

320 ACRES, Crane Co., Tex., Magnolia lease, cheap in fee. Address 415 Littlefield Building, Austin, Texas.

OIL and Gas Lease For Sale. My one-half interest in 204 A. Sec. 7. 4N. 6W. Grady Co., Okla. Also 240 A. Sec. 14 and 15, 2N. 4W. Stephens Co., Okla. E. F. McDowell, Verden, Oklahoma.

5 ACRE Mineral Deed, Landowners Royalty under entire 80 acres of land leased to Gulf Oil Co. being N½ NW¼ Sec. 30, Twp. 14s, Rge. 31e, full price only $32.50. Perpetual and full participating. Send your check. Guarantee delivery. P. O. Box 968, Hobbs, New Mexico.

NATURAL GAS: Offers good returns on your investment; shallow drilling. Good market. Low operating expense. Proven territory. H. W. Mitchell, 411 Pacific, Osawatomie, Kansas.

ALLEN CO., KY., SHALLOW FIELD. See or write C. L. Raines, Scottsville, Ky., regarding producing leases and drilling blocks in Allen County oil field.

25,000 Acres, Carlisle, Ballard, and Hickman Counties, Western Kentucky. Drilling Deals wanted. Box #84, Bardwell, Ky.

FOR LEASING
The NW¼, the SW¼ of Sec. 16 and all of Sec. 15 (excepting E½ of SE¼) all in Township 10, Range 22, Graham County, Kansas. A. A. Andreen, Woodhull, Illinois.

Forest City Basin. Kans. & Mo. Leases, 40 acre tracts and drilling blocks. Margaret Haynes, R #3, N. Topeka, Kansas.

3000 ACRES Illinois leases. Give drilling contract for small bonus. L. L. Livingston, 5057 Enright, St. Louis, Missouri.

SOUTHEAST JACK COUNTY, TEXAS
Two thousand acres commercial leases, surface and subsurface geology, reported shows of oil and gas in sands from 400 to 1600 feet indicate that possibilities of production are above the average on this block. Give half interest to contractor and assist in financing 2500 ft. test, no promotion schemes considered. Geo. Patterson, 416 West Tenth St., Dallas, Texas.

EXCELLENT Opportunity — Semi-proven shallow oil field near pipe lines, refinery, Anderson Co., Kans. Sell acreage and drill. W. L. Morris, Box 314, Garnett, Kans.

SHALLOW OIL, Huerfano County, Colo. Depth 500 feet to sand 150 feet thick producing wet gas with 20 bbls. high gravity oil. Will lease 40 acre tracts offsetting present producing well on override for immediate drilling or sell limited number of leases. No proration. S. W. Pressey, Box 614, Pueblo, Colorado.

Leases and Drilling Blocks

HAVE large block acreage for drilling proposition, Oktibbeha, Winston and Choctaw Cos., Mississippi, in Sparta-Wilcox trend with beautiful structure just been abstracted. Will give ten thousand acres. Write Dr. C. T. Richardson, Kilgore, Tex.

BAKER Structure well started 27-10s-30e N. Mexico: Offer 40-80 or 160 A. $10 acre: Quick before price advance. R. M. Baker, 1045 S. Lake, Los Angeles, Calif.

HOT SPOT LEASES
Forest City Basin, North Missouri. Get them while cheap, some close to wells $1.50 acre, up. Box 152, Milan, Mo.

ILLINOIS and Indiana acreage wanted by large responsible Texas group. Wildcat blocks wanted. Will also pay top prices for proven acreage. Immediate drilling. Address Box J-902, The Oil and Gas Journal, Tulsa, Oklahoma.

FREE 560 A. leases, semi-proven, drill well for $850. Eastman, 2944 Wayne, Kansas City, Mo.

NEW MEXICO
State Oil and Gas Leases
STOP FUMBLING. Buy on known structures where major companies own leases. 50c per acre. 5c rentals. Other leases as low as $6.00 per forty. Write for list. Twenty years in the business without a complaint.
HARRY S. WRIGHT, STATE LESSEE
Registered Dealer—State of Iowa
Box 166, Council Bluffs, Iowa
Box 347, Santa Fe, New Mexico.

Oil Industry Printing

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

Mailing Lists

ROYALTY Lists. Unit Owners Lists. Stockholders Lists. By states. Oil Industry Mailing List Co., Tulsa Loan Bldg., Tulsa Oklahoma.

Financing

CAPITAL SEEKERS—Put your project before 260 Key-Men. Cost trifling. Details free. AMSTER LEONARD, Fox Theater Building. Detroit, Michigan.

Legal Blanks

SINCE 1908 Burkhart's legal forms—serving Mid-Cont. oil fields, including Ill., La. Mo. Ind. & Ky. Free catalog & samples. Burkhart Ptg. & Sta. Co., 115 So. Cinn., Tulsa, Okla.

For Sale—Maps

1939 EDITION MAP OF TEXAS
and Eastern New Mexico shows all OIL and GAS FIELDS up to date
$1.00 per copy
WILDCAT MAP published monthly on same area $3.00 per copy $30.00 one year.
ZINGERY OIL MAP COMPANY
Fair Bldg. Fort Worth, Tex.

WEST TEXAS HANDY OIL MAPS
Complete coverage on all West Texas Fields, showing operators, farm names, total depths and exact well locations, $10 per month. Individual maps 50 cents each. Box 2519, Tulsa, Oklahoma.

MAP BOOK of all Texas counties 254 maps, each 14x16 inches. Show: Sections, blocks, surveys, certificate and abstract numbers. With Binder. Postpaid $10.00.
OIL CITY MAP CO.
Box 925, Longview, Texas.

Contractors

NORTHWEST Missouri—We have light, modern, all-steel, truck mounted spudders for shallow information holes to marker limes in Forest City basin. Drillers familiar with formations. Office close to area. Also have spudders for deep wild cat holes. References. J. D. Judd & Son, Martin City, Mo. 6 miles south of Kansas City on Holmes St. Phone Dwight 3273.

WE will contract your Ditching and Bulldozer work. Also have Pipe Line Equipment for rent or sale. Kova Pipe Line Co., 503 Tradesmen Bldg., Oklahoma City, Okla.

Business Opportunities

Desirable water front bulk plant, Westchester County, adjacent Long Island Sound, storage tanks, garages, office, warehouse, long lease, reasonable rental. Address Box J-886, The Oil and Gas Journal, Tulsa, Oklahoma.

WANTED: Individual, or company to finance honorable party for oil leasing in Wayne, Lucas, or Appanoose Co., Iowa. No boast—I have 2 or 3 oil domes on North, Mo. loan farms for sale cheap. Not for lease. Need partner with finance. Splendid deal for right party. J. Earl Davidson, R. #3, Corydon, Ia.

Incorporations

DELAWARE CHARTERS: Complete service $35. Submitted forms. Chas. G. Guyer, Inc., Wilmington, Delaware.

CHARTERS — Delaware best, quickest, cheapest, more liberal. Free forms. Colonial Charter Co., Wilmington, Del.

Royalties

ANDREW J. BARRETT
The Philtower
Tulsa, Oklahoma.

Brokers—Salesmen

Sell in the most active area in the United States—The Permian Basin of West Texas and Southeastern New Mexico. From the standpoint of royalty investors this area has much to offer. Can supply you with choice non-producing royalties located on geophysical highs. Also drilling blocks, close in acreage to production, or wildcat leases. I maintain my own field men who cover this area for me. All offerings meet the requirements of the Security and Exchange Commission. Inquiries invited.

B. D. BUCKLEY
Paul Brown Bldg., St. Louis, Mo.

Producing and Non-Producing
OIL ROYALTIES
Registered Dealers Only.
GRIMES ROYALTY CO.
Hunt Bldg. Tulsa, Okla.

PRODUCING OIL ROYALTIES
15 years of experience.
L. H. WITWER
703 Kennedy Bldg., Tulsa, Okla.

WILL BUY non-producing landowners royalty—under drilling wells only. P. H. HAWLEY, 727 W. 7th St., Los Angeles, Calif.

OWNERS of fractional landowners royalty interests still paying send full details to City Investing Co., 434 Roosevelt Bldg., Los Angeles, Calif.

WANTED producing oil royalties and oil payments in North and West Texas and New Mexico. P. O. Box 1535, Fort Worth, Texas.

Survey Service

OIL FINDING DOWSING METHOD
My deductions a practical method which picks up vibratory reactions emanating from carbo-hydrates. Physico method finds oil, locates faults. Same method discovered great East Texas field also our Watson #2 first producer Wilmington, Calif. field. Employ a man that owns producing wells. I find oil if it exists or no charge. George Miller, 1548 Post, Torrance, California.

Equipment Wanted

USED TRANSITS WANTED
No junk, antiquated, or worn-out instruments wanted—must be permissible to repair to shape like new. Write full particulars to
P. O. BOX 6005, Houston, Tex.

CASH FOR IDLE STORAGE
We will buy at any location steel storage tanks. Send full information and location to—
P.O. Box 168, Tulsa, Okla.

WANTED—Steel building: 40′ to 48′ wide x 90′ long. State condition, make, type, price and location in first letter. Address Box J-906, The Oil and Gas Journal. Tulsa, Okla.

A GOOD used air compressor and motor are desired. Capacity of compressor 400 cfm. free air. Send full particulars. Address Box J-907, The Oil and Gas Journal, Tulsa, Okla.

For Sale—Equipment

FOR SALE: 2—OCS chain driven reconditioned sand reels, I. T. I. O. Company, Bartlesville, Oklahoma.

FOR SALE: Used large capacity positive and orifice gas meters. Geo. R. Milner, Okmulgee, Oklahoma.

CLASSIFIED ADVERTISING RATES

Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgement is made, and proofs cannot be shown in advance of publication.

	1 time	2 times	3 times	4 times
3 Lines	$1.05	$1.80	$2.25	$3.30
4 Lines	1.40	2.40	3.40	4.40
5 Lines	1.75	3.00	4.25	5.50
6 Lines	2.10	3.60	5.10	6.60
7 Lines	$2.45	$4.20	$5.95	$7.70
8 Lines	2.80	4.80	6.80	8.80
9 Lines	3.15	5.40	7.65	9.90
10 Lines	3.50	6.00	8.50	11.00

CLASSIFIED DISPLAY RATES

Classified Display is set with a border and may be used in one or two column sizes

1 Inch	1 time	$5.00
1 Inch	13 times	4.50 per inch
1 Inch	26 times	4.00 per inch
1 Inch	52 times	3.50 per inch

This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

COMPLETE REFINERY

—All or Any Part—

Two 253 h.p. Heine Straight Tube Boilers A.S. &M.E. 200 lbs. pressure. Complete with oil and gas burners. In service less than eight months.

Complete 6,000 bbl. Winkler-Koch pipe still with Winkler-Koch distillation bubble tower 8'6" diameter by 78' high.

One Burrel-Mase fractionator Type E-48-20 Series 600-48, 4' diameter by 51'6" high. 20 trays with bolted manhole on each tray, with separate reboiler and connecting piping.

Complete inventory furnished on request

SONKEN-GALAMBA SUPPLY COMPANY

W. C. Berry or H. J. Galamba,
Riverview at Second, Kansas City, Kansas

H. A. Gulley
Port Lavaca, Texas

Robt. W. Duden,
2100 S. Union, Tulsa, Oklahoma

FOR SALE at Bartlesville: 1—2A National Drilling Machine. I. T. I. O., Bartlesville, Oklahoma.

---

25 K.W. and 40 K.W. Gas Engines, 220 volts, D.C. Two 100 K.W. Gas Engine-Generator Sets, 220 volts, D.C. 7x6 Ingersoll-Rand ER-1 Air compressor. Six-inch Oster Pipe Threading Machine. Also large stock of lathes, pipe machines, milling machines, etc. Send for our list.
Terms to suit.
CINCINNATI MACHINERY & SUPPLY CO.
26 West 2nd St. Cincinnati, Ohio.

FOR SALE—Approximately 10 miles each of No. 10 galvanized and No. 10 copper telephone wire. I. T. I. O., Bartlesville, Okla.

FOR SALE
3,000 barrel Cracking Unit located in Oklahoma. This unit is in good condition and could be converted to a combination skimming and cracking unit to handle 6,000 barrels of crude daily by the addition of pumps, towers and exchangers. Box 2009, Tulsa, Oklahoma.

FOR SALE: At Oklahoma City No. 4A National Tank Oil and Gas Separators 500# working pressure. I. T. I. O. Co., Bartlesville, Oklahoma.

FOR SALE: One complete steam rotary rig with 4" drill pipe, 90 H.P. Broderick Boilers completely equipped and in shape to drill immediately. Located on the Tucker lease out of Haven, Kansas. For further information contact the Viking Drilling Company, c/o Yingling Chevrolet Company, Wichita, Kansas.

FOR SALE: CIW steam operated, McEvoy hand operated blowout preventers, high pressure steel drilling and manifold gate valves, cable tools, oil and gas separators, butane tanks, well servicing units, I. T. I. O. Co., Bartlesville, Okla.

WILSON GIANT PORTABLE DRILLING RIG; Powered by Buda Diesel Engines. Rig is complete and in A-1 condition. Terms. P. O. Box 1360, Seminole, Okla.

Oil Well 18' Power and Idler. 40 H.P. Black Bear Gas Engine Belts, Metal Buildings and Circulating Tank. A-1 condition. Priced for quick sale.
DAVE MORGAN OIL COMPANY
P. O. Box 549
Blackwell, Oklahoma.

2—Buda heavy duty 6 cyl. Power Units, with radiator, fan, etc. Model JH-6, 6x7¼". 80 to 155 HP. Operate on Gas, Gasoline, Butane, or 38/40 Distillate. Completely overhauled. Immediate shipment from stock. Make excellent drilling rigs.
MISSISSIPPI VALLEY EQUIPMENT CO., Chamber of Commerce Bldg., St. Louis, Mo.
Diesels 25 to 1200 HP For Sale and Wanted

FOR SALE: Sectional Steel Buildings 1—30 x 10 x 60 standing; 1—20 x 8 x 128 K. D. Oklahoma City; 1—24 x 8 x 106 K. D. Seminole, condition O.K. Inspection invited. I. T. I. O. Co., Bartlesville, Okla.

Pumping Unit—Lee C. Moore #9731, 6000 lb. Polished Rod Capacity. Complete with Engine, 1950 lbs. Counterweights, for 2000' well. Practically new. Also 1550'—5⅛" O.D., 17 lb., Seamless Csg. in A-1 condition. Complete set 2" tubing tools, conections, complete ¾" Rod Tools, etc. Mutual Investments, Inc., 1106 Hales Building, Oklahoma City, Oklahoma.

FOR SALE
Rotary Rig—6" Johnson Draw Works. Two mud Hog Pumps, 65 Boiler, 12X12 Ajax Engine, 3000 ft. good 4" drill pipe with tool joints and other equipment to complete rig. Also 88 ft. steel derrick. All for $4000.00 Cash.
BOB STONER
1170 Peabody, Memphis, Tenn.

FOR SALE—Steel riveted smoke stack. Self supporting. Diameter 9 feet, height 126 feet. Like new. Can ship on day's notice.

High and low pressure refinery valves. Standard makes. Sizes ¾ inch to and including six inch. Subject to test inspection. Harvey Bros., 706 Rudd, Canon City, Colorado.

FOR SALE: At our Oklahoma City Warehouse Model D48 Muskogee Iron Works long line well servicing unit powered by HXE Hercules engines mounted on No. 55 truck. I.T.I.O., Bartlesville, Oklahoma.

FOR SALE 45 Star Spudder Complete with tools and equipment, 13 inch down to 6⅝ inch. Also 60 Caterpillar tractor J. L. Gardenhire, Centralia, Illinois.

Situations Wanted

REFINERY Operator and Chemist desires location. Experience in still operation, cracking, lube mfg., treating, etc. Management experience. Address Box J-852, The Oil and Gas Journal, Tulsa, Oklahoma.

GRADUATE PETROLEUM ENGINEER—14 years' experience in production and geological work. Several years in supervisory capacities. Supervision of drilling and development a specialty. Desire connection with reliable firm. References if needed. Address Box J-882, The Oil and Gas Journal, Tulsa, Oklahoma.

DESIRE connection with company or individual developing oil property, operation or installation of natural gas plant as employee or partner. Graduate engineer, 20 years' operating experience, 4 years with state service Comm. Address Box J-832, The Oil and Gas Journal, Tulsa, Okla.

Petroleum geologist, employed at present, desires position with increased responsibilities, exp. seismic, magnetic geophysical methods. Single, in good health, consider foreign service. Address Box J-890, The Oil and Gas Journal, Tulsa, Okla.

DEVELOPMENT CHEMIST—B. S. in Ch. E. 17 years diversified refinery experience. Excellent record. Employed in research, desires change to refinery development problems. Age 38. Address Box J-908, The Oil and Gas Journal, Tulsa, Okla.

Situations Wanted

YOUNG Man, 26, single, two dependents, now employed as Asst. Mgr.—Bookkeeper by wholesale tire and auto supply firm in Central Texas desires position with future. Good references, good health. Go anywhere. Address Box J-904, The Oil and Gas Journal, Tulsa, Oklahoma.

POSITION WANTED
Development and research engineer. Chemical engineer training. Exp. in thermal decomposition of hydrocarbons and polymerization processes. Address Box J-892, The Oil and Gas Journal, Tulsa, Okla.

REFINERY Engineer thoroughly experienced maintenance, construction all types modern refinery units. Executive background. Technically trained. Consider any location, any reasonable offer. Address Box J-905, The Oil and Gas Journal, Tulsa, Okla.

Help Wanted

ORGANIC CHEMIST of ability preferably with doctorate, with experience along following lines desirable but not essential: Manufacture of ethylene glycol, formaldehyde, etc. from petroleum or natural gas, catalysis as related to polymerization or cracking by hydrocarbons for research and development work in the Middle West. An opportunity for a capable man. Give details of education, experience, age, nationality, salary. Address Box J-881, The Oil and Gas Journal, Tulsa, Oklahoma.

WANTED—Sales Engineer with chemical engineering education and process experience in industrial plants. Outstanding personality, proven sales ability and highest character references required. Candidates will be given special consideration who have had significant experience with control instruments and electric pyrometers. Write stating age, education, experience and salary desired. Address Box J-900, The Oil and Gas Journal, Tulsa, Okla.

WANTED: For a Michigan Refinery, a Laboratory Man thoroughly experienced with Road Oils and Asphalts. In reply state fully experience, training, and salary desired. Address Box J-903, The Oil and Gas Journal, Tulsa, Oklahoma.

SALES OPPORTUNITY

Due to reorganization of distribution outlets 22-year old manufacturer of maintenance product has the following territories available: 1—Northern Ohio, 2—Western Pennsylvania, 3—Illinois, 4—Wisconsin, 5—Oklahoma, 6—Colorado, 7—Georgia. Real opportunity for additional income for salesmen now contacting manufacturers, paper makers, utilities, railroads, oil producers and refiners mining or chemical industries. Protected territory, full credit on all orders. Write, giving lines now carried, territory covered. Address Box J-901, The Oil and Gas Journal, Tulsa, Oklahoma.

FUTURE LAWS

(Continued from Page 133)

tive agency. However, particularly in the administration of Rule 37, as pointed out, it has acted often times capriciously, arbitrarily and unreasonably and the courts have, I think, given them too much latitude.

The statutes provide that any order of the Railroad Commission in a Rule 37 or other conservation case, is presumed to be valid. This, of course, is only a rebuttable presumption; it is not conclusive. The statutes also provide that an aggrieved party may appeal from an order of the Railroad Commission to the District Court of Travis County and that the trial in the district court will be de novo.

Upon a trial de novo, it obviously becomes the duty of the court to inquire whether the action of the commission is capricious or arbitrary, in that there is no evidence to support it, or whether it is unreasonable in its operation and effect. Manifestly, in determining whether such an order is capricious or arbitrary, it is only necessary to examine the record of the hearing before the commission in order to determine whether or not there was some evidence to support the finding of the commission. If such evidence existed, then it was neither capricious nor arbitrary, because it had some factual basis to support it. However, the fact that an order of the commission may not be arbitrary or capricious does not mean at all that it could not be confiscatory or unreasonable in its operation and effect.

The determination as to whether the order is unreasonable or not is a judicial question; and, on a trial de novo, it becomes the duty of the court to determine this fact upon the basis of evidence introduced and heard by the court and jury and not upon the basis of the evidence had before the commission. These are principles of administrative law which have long been recognized and applied by the U. S. Supreme Court. Yet if you read through the quagmire of decisions of our courts of civil appeals and of our Supreme Court on this subject, you will see that they are in hopeless confusion. Here again I think the principal trouble is that our Supreme Court is so intensely interested in clearing its docket that it will not take the time and trouble to give real consideration to any one of the many cases which litigants seek to bring to them on writs of error in order to clear up the confusion.

Once more, I say that I believe it will be necessary to take one or more cases involving this question to the U. S. Supreme Court in order to clear up the confusion in our state courts. In very recent opinions handed down by the U. S. Supreme Court in Labor Board cases, the court has clearly and unequivocally distinguished between the functions of an administrative agency which are administrative, and the functions of the courts which are judicial in their nature. If we are to be safe from tyranny and oppression at the hands of administrative agencies, I think it is clear that our courts must at all times remain open in order that the litigants may have a judicial review of arbitrary, capricious and unreasonable orders of such agencies. I believe that in the not far distant future the existing confusion in our state decisions on this question will be cleared up. It is of vast importance that it be done in the interest of the industry and of the public alike.

Because we have abiding faith in American institutions and in the ability of our legal system to adjust itself to any conditions in a changing world, we believe that the oil and gas law of the future will continuously strive to keep abreast of the times and to be the guardian and protector of the rights and the enforcer of the duties of all concerned.

Index to Advertisers

A

Abercrombie, J. S., Co.
Abercrombie Pump Co. 58
Air Reduction Sales Co. 1
Ajax Iron Works
Alco Products Division — American Locomotive Company
Allegheny Ludlum Steel Corporation 113
Allis-Chalmers Mfg. Co. 14-15
Allsteel Products Mfg. Co., The
American Bosch Corporation
American Cable Division of American Chain & Cable Co., Inc.
American Cast Iron Pipe Company
American Iron & Machine Works
American Meter Company
American Sand-Banum Co., The
American Steel & Wire Company 17
Armstrong Machine Works 98
Atlas Drop Forge Co. 110
Atlas Imperial Diesel Engine Co.
Atlas Supply Co.
Auer, C. L., & W. W.
Axelson Manufacturing Company 96

B

Baash-Ross Tool Company 99
Babcock & Wilcox Tube Co., The
Badger & Sons Co., E. B.
Bakelite Corporation
Baker Oil Tools, Inc.
Baldwin-Duckworth Chain Corp.
Bantam Bearings Corp.
Baroid Sales Company
Barret, William M., Inc. 114
Bastian-Blessing Co., The
Beaumont Iron Works Co.
Beckman, Inc.
Bethlehem Steel Co.
Billings & Spencer Co., The
Boston Woven Hose & Rubber Co.
Braden Steel Corporation
Bradford Motor Works, Inc.
Braun, C. F., & Co.
Brewster Company, The 99
Bridgeport Machine Company 20
Broderick & Bascom Rope Co. 6
Brown Instrument Co., The
Bruning, Charles, Co., Inc.
Buckeye Traction Ditcher Co., The
Butler Manufacturing Co.
Byron Jackson Co.

C

Cable, Jo H. 98
Cameron Iron Works, Inc. 64
Carey Company, The Philip
Carnegie-Illinois Steel Corporation
Case, J. I., Company
Cast Iron Pipe Research Association, The 54
Caterpillar Tractor Co.
Century Electric Co.
Chain Belt Co., The
Chaplin-Fulton Mfg. Co., The 110
Chapman Valve Mfg. Co., The
Chemical Process Co., Inc., The
Chevrolet Motor Division, General Motors Sales Corporation
Chicago Bridge & Iron Company 16
Chiksan Oil Tool Co., Ltd.
Clark Brothers Company
Classified Advertising 134-135
Cleveland Trencher Company
Climax-Molybdenum Company
Columbia Steel Company
Columbian Steel Tank Co.
Continental National Bank of Fort Worth
Continental Oil Co.
Continental Supply Company, The 101
Cooper, Fred E.
Cooper-Bessemer Corp., The
Core Laboratories, Inc.
Crane Co. 7
Cummins Engine Co.
Curtin, W. H., & Co., The

D

D & B Pump and Supply Co. 101
Darling Valve & Mfg. Co.
Davis Regulator Co.
Dayton Rubber Mfg. Co., The
Diamond Chain & Manufacturing
Dodge Mfg. Company 92
Doheny Stone Drill Co. Front Cover
Dowell, Incorporated
Dragon Mfg. Co., The
Dresser Mfg. Co.
Du Pont de Nemours & Co., Inc.

E

Eagle Picher Lead Co.
Eastman Oil Well Survey Co.
Economy Electric Lantern Co. 110
Edward Valve & Mfg. Co., The
Emsco Asbestos Company 98
Emsco Derrick & Equipment Company
Ensign Carburetor Company, Ltd. 113
Ethyl Gasoline Corporation 12-13
Evansville Chamber of Commerce

F

Failing, George E., Supply Company
Fairbanks-Morse
Filtrol Corp.
First National Bank of Fort Worth
First National Bank in Houston
First National Bank & Trust Co. of Tulsa, The
Fisher Governor Company 11
Fluor Corporation, Ltd., The
Foote Bros. Gear and Machine Corporation
Ford Motor Co. 80
Fort Worth Chamber of Commerce
Fort Worth Clearing House Association
Fort Worth National Bank, The
Foster Wheeler Corp.
Four Wheel Drive Auto Co., The
Foxboro Co., The
Franks Mfg. Co.
Frick-Reid Supply Corporation
Frost National Bank

G

Gardner-Denver Company
Garlock Packing Company, The 107
Gaso Pump & Burner Mfg. Co.
Gasoline Products Co., The
Gates Rubber Co., The
Gatke Corporation
General American Transportation Corporation—Terminal Division
General Electric Company
General Motors Truck
General Paint Corporation
General Power, Inc.
Geophysical Service, Inc.
Gilmer Company, L. H.
Gilmore Wire Rope Division of Jones & Laughlin Steel Corporation 9
Girdler Corporation, The
Goodall Rubber Co.
Goodrich Co., B. F., The 3
Goodyear
Gott, H. P., Mfg. Co. 92
Goulds Pumps, Inc.
Graver Tank & Mfg. Co., Inc.
Gray Processes Corporation, The
Grossrohr-Verband G.m.b.H.
Guiberson Corporation
Gulf Oil Corp.
Gulf States Utilities Co.
Gustin-Bacon Mfg. Co.

H

Haering, D. W., & Co., Inc.
Halliburton Oil Well Cementing Co.
Hanbury, Harry 111
Hanlon-Buchanan, Inc.
Happy Belting Company
Harnischfeger Corporation
Harrisburg Steel Corporation
Hazard Wire Rope Division of American Chain & Cable Co., Inc. Inside Back Cover
Hercules Tool Company
Hewitt Rubber Corp. 87
Hill-Hubbell & Co.
Hoard Exploration Company
Houston Lighting & Power Company
Hughes Tool Co. Back Cover-104-105
Humble Oil & Refining Co.
Hunt Tool Company
Hydril Co. Front Cover

I

Independent Exploration Company
Inferno Co., The 2
Ingersoll-Rand Co.
International Derrick & Equipment Co., The
International Geophysics, Inc.
International Harvester Co. 53
International Nickel Company, Inc., The 18
International Petroleum Exposition

J

Jarecki Manufacturing Company
Jensen Brothers Manufacturing Co.
Jerguson Gage & Valve Co.
Johns-Manville Corporation
Johnston, M. O., Oil Field Service
Jones & Brooks, Inc.
Jones Company, S. M.
Jones & Laughlin Steel Corporation Inside Front Cover
Jones-Shelburne, Inc.

K

Kane Boiler Works, Inc.
Kellogg, M. W., Company, The 8
Kennedy Valve Mfg. Co., The
Kerotest Manufacturing Co.
Keuffel & Esser Co.
Key Company
Keystone Driller Co.
Kibele Manufacturing Co.
Kinley Co., M. M.
Kinzbach Tool Co. 99
Kobe, Incorporated
Kropp Forge Company
Krupp

L

Landis Machine Co., The
Lane-Wells Co., The 60-61
Larkin Packer Company, Inc.
Layne & Bowler, Inc.
Leland Equipment Co.
Lennox Hotel
Le Roi Company
Leschen, A., Sons Rope Co.
Lincoln Electric Company, The
Linde Air Products Co., The
Line Scale Co., Inc.
Link-Belt Company
Lockheed Aircraft Corporation
Lone Star Cement Corporation
Lucey Products Corporation
Ludlow Valve & Mfg. Co., The
Lufkin Foundry & Machine Co.
Lufkin Rule Co., The 111
Lummus Co., The
Lunkenheimer Co., The

Mc

McGregor Working Barrel Company 119
McKissick Products Corp.

M

MacClatchie Manufacturing Company
Macwhyte Co.
Magnolia Airco Gas Products Co. 1
Maloney Tank Mfg. Co.
Manhattan Rubber Mfg. Division
Mannesmannrohren Werke
Marley Company, The
Marmon-Herrington Co., Inc.
Marsh, James P., Corp.
Martin-Decker Corp.
Maschinenfabrik Imperial G.m.b.H.
Mathey Machine Works, C. A.
Mauser, K.-G.
May, George S., Company
Mayfair Hotel 111
Medart Company
Meehanite Research Institute
Merco Nordstrom Valve Co.
Metric Metal Works
Midco Tool & Supply Co.
Mid-Continent Supply Co.
Midwest Piping & Supply Company, Inc., The 93
Miller Sand Pump Co., The 94
Mission Mfg. Co., The 56
Mudrite Products Co.
Murcell, Inc., U. C.
Murphy Diesel Company, Ltd.
Muskogee Iron Works

N

National Bank of Tulsa
National Carbon Co., Inc.
National Lead Company
National Supply Co., The 63
National Transit Pump and Machine Co.
National Tube Co.
Naylor Pipe Company
New Bedford Cordage
New Deal Specialty Co., The
Newman, Hender & Co., Ltd.
Nichols Copper Company
Nitrose Company, Inc., The 111
Novo Engine Co.

O

O'Bannon Co., Walter
Oil Center Tool Co.
O.C.S. Mfg. Co., The
Oil Equipment Manufacturing Co.
Oil Industry Mailing List Co.
Oil Well Mfg. Corp.
Oil Well Supply Company
Oil-World Exposition, Inc.
O.-K. Machine & Manufacturing Co.
Osage Metal Company
Oster Manufacturing Company
Otis Pressure Control, Inc.

P

Page Steel & Wire Division of American Chain & Cable Co.
Parkersburg Rig & Reel Co., The 73
Parkhill-Wade
Patterson-Ballagh Corporation 77
Peerless Pump Division of Food Machinery Corp.
Penberthy Injector Co. 47
Pennsylvania Grade Crude Oil Association
Perco, Inc. 69
Petroleum Advisers, Inc.
Petroleum Electric Power Club
Petroleum Publishing Company, The
Petroleum Rectifying Company
Phelps Dodge Refining Corporation
Philadelphia Gear Works
Pittsburgh-Des Moines Steel Company
Pittsburgh Equitable Meter Co.
Pittsburgh Steel Company
Plymouth Cordage Co.
Pomona Pump Co.
Portable Rig Co.
Prest Machine Works Co.
Price Co., H. C.
Pritchard, J. F., & Co.
Pure Oil Co.

R

Reading-Pratt & Cady Division of American Chain & Cable Co., Inc.
Rector Well Equipment Co., Inc.
Reda Pump Co.
Reed Roller Bit Company
Regan Forge & Engineering Co. 109
Reilly Tar & Chemical Corporation
Republic Rubber Division of Lee Rubber & Tire Corp.
Republic Steel Corp.
Ryerson & Son, Inc., Joseph T.

S

St. Joseph Forward Association
San Antonio, City of
Schlumberger Well Surveying Corporation
Security Engineering Co.
Seismic Explorations, Inc.
Seismograph Service Corp.
Shafer Bearing Corporation
Shaffer Specialty Co., The
Shaffer Tool Works
Shand & Jurs Co. 85
Shell
S.K.F. Industries, Inc.
Skinner Co., M. B.
Smith, A. O., Corporation 4-5
Smith Company, E. M.
Smith, H. C., Oil Tool Co. 99
Smith Company, Howard 98
Smooth-On Mfg. Co.
Socony-Vacuum Oil Co.
South Chester Tube Co.
Southwestern Gas & Electric Company
Spang Chalfant, Inc.
Spang & Company, Inc.
Sperry-Sun Well Surveying Co.
Spicer Mfg. Corp.
Standard Brake Lining Co. 98
Star Drilling Machine Company
Stark, Ralph, Inc.
Stearns-Roger Manufacturing Co.
Sterling Engine Co.
Sturtevant Company, B. F.
Subterrex
Swartz, Stephen 94

T

Taylor Forge & Pipe Works
Taylor Instrument Companies
Technical Oil Tool Corporation
Texaco Development Corporation
Texas Iron Works
Thornhill-Craver Co., Inc.
Timken-Detroit Axle Co.
Timken Roller Bearing Company
Timken Roller Bearing Company Steel and Tube Division 10
Toledo Pipe Threading Machine Co., The 107
Tretolite Co.
Trinity Portland Cement Company
Tubbs Cordage Co. 98
Tube Turns, Inc.
Tulsa Boiler & Machinery Co.
Tulsa Chamber of Commerce
Twin Disc Clutch Co.

U

Union Wire Rope Corporation 89
Unit Rig & Equipment Company
United Motors Service, Inc.
United States Rubber Company
United States Steel Corp., Subsidiaries
United States Steel Products Company
Universal Atlas Cement Co.
Universal Exploration Co.
Universal Oil Products Co. 51

V

Vagabond Coach Mfg. Co.
Viking Pump Co.
Visco Products Company
Vogt, Henry, Machine Co.

W

Wall Rope Works, Inc. 98
Walworth Company
Warren Petroleum Corporation
Watson-Stillman Co., The
Waukesha Motor Co.
Well Equipment Mfg. Corp.
Westinghouse Electric & Mfg. Co.
Weston Electrical Instrument Co.
Wheatley Bros.
Wheland Co., The
Whitney Chain & Mfg. Co., The
Wickwire Spencer Steel Company 49
Williams & Co., J. H.
Wilson Manufacturing Co.
Wilson Welder & Metals Co., Inc.
Witte Engine Works
W-K-M Company, Inc.
Worthington Pump & Machinery Corporation
Wyatt Metal & Boiler Works

Y

Young Engine Corp.
Young Radiator Company
Youngstown Sheet & Tube Co.

Z

Zink Burners, John

The Oil Man's Calendar appears on Page 42

ience
rary

MAR 17 1939

41

the OIL AND GAS JOURNAL

MARCH 16
1939

PRICE
O CENTS